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TRAVELS IN PERU.

TRAVELS IN PERU,

DURING THE YEARS 1838—1842,

ON THE COAST, IN THE SIERRA, ACROSS THE CORDILLERAS AND THE ANDES, INTO THE PRIMEVAL FORESTS.

BY DR. J. J. VON TSCHUDI.

TRANSLATED FROM THE GERMAN

BY THOMASINA ROSS.

IN TWO PARTS—PART I.

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PREFACE.

THE Work from which the present Volume is translated consists of extracts from the Author's Journal, accompanied by his recollections and observations. The absence of chronological arrangement will be sufficiently accounted for, when it is explained that the zoological investigations for which the journey was undertaken frequently required the Author to make repeated visits to one particular place or district, or to remain for a considerable time within the narrow circuit of a few miles; and sometimes to travel rapidly over vast tracts of country. Disclaiming any intention of making one of those travelling romances, with which the tourist literature of the day is overstocked, the Author has confined himself to a plain description of facts and things as they came within the sphere of his own observation. But though Dr. Tschudi lays claim to no merit beyond the truthfulness of his narrative, yet the reader will no doubt readily concede to him the merit of extensive information, and happy descriptive talent. His pictures of Nature, especially those relating to the animal world, are frequently imbued with much of the charm of thought and style which characterizes the writings of Buffon.

Lima, the oldest and most interesting of the cities founded by the Spaniards on the western coast of South America, has been frequently described; but no previous writer has painted so ani-

mated a picture of the city and its inhabitants, as that contained in the following volume. After quitting the capital of Peru, Dr. Tschudi went over ground previously untrodden by any European traveller. He visited the Western Sierra, the mighty chain of the Cordilleras, the boundless level heights, the deep mountain valleys on the eastern declivity of the Andes, and the vast primeval forests. Whilst recounting his wanderings in these distant regions, he describes not only the country and the people, but every object of novelty and interest in the animal, vegetable, and mineral creations.

Those lovers of Natural History who are familiar with the German language, and who may wish to make themselves extensively acquainted with the animal world, in those parts of Peru visited by Dr. Tschudi, will find abundant information on the subject in his work, with plates, entitled "Untersuchungen über die Fauna Peruana." The present Publication, though containing a vast deal to interest the naturalist, is addressed to the general reader, and will, it is presumed, gratify curiosity respecting the highly interesting and little known regions to which it relates. It may fairly be said that no previous writer has given so comprehensive a picture of Peru; combining, with animated sketches of life and manners, a fund of valuable information on Natural History and Commerce.

T. R.

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TRAVELS IN PERU.

CHAPTER I.

Embarkation at Havre—The Voyage—Arrival at the Island of Chiloe—Landing—The Gyr-Falcon—Punta Arena—The Island of Chiloe described—Climate and Cultivation—Cattle—The Bay—San Carlos—The Governor's House—Poverty and Wretchedness of the Inhabitants of the Town—Strange method of Ploughing—Coasting Vessels—Smuggling—Zoology—Departure from Chiloe.

On the 27th of February, 1838, I sailed from Havre-de-Grace on board the "Edmond." This vessel, though a French merchantman, was freighted with a cargo of Swiss manufactured goods, suited to any commercial transactions which might be entered into in the course of a circumnavigatory voyage. It was a boisterous morning. A fall of snow and heavy clouds soon intercepted our view of the coast of France, and not one cheering sunbeam shone out to betoken for us a favorable voyage. We passed down the British Channel, where the multitude of vessels, and the flags of all nations, presented an enlivening picture, and we finally cleared it on the 5th of March. Favored by a brisk north wind, we soon reached Madeira and came in sight of Teneriffe, the peak being just perceptible on the skirt of the horizon. Easterly breezes soon brought us to the island of Fogo, which, having passed on the 35th day of our voyage, we received the usual marine baptism, and participated in all the ceremonies ob-

served on crossing the equator. We soon reached the tropic of Capricorn, and endeavored to gain the channel between the Falkland Islands and Patagonia; but unfavorable winds obliged us to direct our course eastwards, from the Island of Soledad to the Staten Islands. On the 3d of March we made the longitude of Cape Horn, but were not able to double it until we got into the 60th degree of south latitude. In those dangerous waters, where it is admitted by the boldest English sailors that the waves rage more furiously than in any other part of the world, we encountered great risk and difficulty. For twenty-two days we were driven about on the fearfully agitated sea, southward of Tierra del Fuego, and were only saved from being buried in the deep, by the excellent build and soundness of our ship.

We suffered much, and were long delayed by this storm; but when it subsided, a smart breeze sprang up from the southward, and we held our course along the Pacific to the coast of Chile. After a voyage of 99 days we cast anchor on Sunday the 5th of June, in the Bay of San Carlos. Like the day of our departure from Europe, that of our arrival off Chiloe was gloomy and overcast. Heavy clouds obscured the long-looked-for island, and its picturesque shore could only be seen, when, at intervals, the wind dispersed the dark atmospheric veil. We had no sooner cast anchor than several boats came alongside rowed by Indians, who offered us potatoes, cabbage, fish, and water, in exchange for tobacco. Only those who have been long at sea can form an idea of the gratification which fresh provisions, especially vegetables, afford to the weary voyager. In a couple of hours, the harbor-master came on board to examine the ship, the cargo, &c., and to give us permission to go ashore. The long-boat being got out, and well manned, we stepped into it, and were conveyed to the harbor. The Bay of San Carlos being shallow, large ships, or vessels, heavily laden, are obliged to go three English miles or more from the landing-place before they can anchor. Our boat was gaily decorated and newly painted; but this was mere outside show, for it was in a very unsound condition. During our passage through the tropics, the sun had melted the pitch between the planks of the boat, which lay on the deck keel uppermost.

In this crazy boat, we had scarcely got a quarter of a league from the ship, when the water rushed in so forcibly through all the cracks and fissures, that it was soon more than ankle deep. Unluckily the sailors had forgotten to put on board a bucket or anything for baling out the water, so that we were obliged to use our hats and boots for that purpose. Fourteen persons were crowded together in this leaky boat, and the water continued rising, until at length we began to be seriously apprehensive for our safety, when, fortunately, our situation was observed by the people on shore. They promptly prepared to send out a boat to our assistance, but just as it was got afloat, we succeeded in reaching the pier, happy once more to set our feet on *terra firma*.

Our first business was to seek shelter and refreshment. There is no tavern in San Carlos, but there is a sort of substitute for one, kept by an old Corsican, named Filippi, where captains of ships usually take up their quarters. Filippi, who recognized an old acquaintance in one of our party, received us very kindly, and showed us to apartments which certainly had no claim to the merits of either cleanliness or convenience. They were long, dark, quadrangular rooms, without windows, and were destitute of any article of furniture, except a bed in a kind of recess.

As soon as I got on shore, I saw a multitude of small birds of prey. They keep in flocks, like our sparrows, hopping about everywhere, and perching on the hedges and house-tops. I anxiously wished for an opportunity to make myself better acquainted with one of them. Presuming that shooting in the town might be displeasing to the inhabitants, who would naturally claim to themselves a sort of exclusive sporting right, I took my gun down to the sea-shore, and there shot one of the birds. It belonged to the Gyr-Falcon family (*Polyboriniæ*), and was one of the species peculiar to South America (*Polyborus chimango*, Vieil). The whole of the upper part of the body is brown, but single feathers here and there have a whitish-brown edge. On the tail are several indistinct oblique stripes. The under-part of the body is whitish-brown, and is also marked with transverse stripes feebly defined. The bird I shot measured from the point of the beak to the end of the tail 1 foot 6½ inches.

Though these Gyr-Falcons live socially together, yet they are very greedy and contentious about their prey. They snap up, as food, all the offal thrown out of doors; and thus they render themselves serviceable to the inhabitants, who consequently do not destroy them. In some of the valleys of Peru, I met with these birds again, but very rarely and always single and solitary. I continued my excursions on the sea-shore, but with little satisfaction, for the pouring rain had driven animals of every kind to their lurking-holes. After a few days, I went on board the "Edmond," for the purpose of visiting PUNTA ARENA, a town on the side of the bay, whither our boat used to be sent for fresh water. The ground surrounding the spring whence the ships obtain supplies of water, is sandy, and it becomes exceedingly marshy further inland. After wandering about for a few hours, I found myself quite lost in a morass, out of which I had to work my way with no little difficulty. The whole produce of my hard day's sport consisted of an awlbeak, a small dark-brown bird (*Opethiorhyncus patagonicus*), and some land-snails. On our return, as we were nearing the ship, we killed a seal (*Otaria chilensis*, Müll.), which was rising after a dive, close to the boat.

On the 22d of June, all our ship's company were on board by order of the captain. We weighed anchor, and cruized about for some time. At length, about five in the afternoon, we returned, and the ship was anchored again precisely on the spot she had left a few hours before. It was set down in the log-book that the wind was not sufficiently favorable to allow the ship to pass out safely through the narrow entrance to the bay. But all on board were well aware that this was merely a pretence on the part of the captain, who, for some reason or other, wished to stop longer at San Carlos.

I was very much pleased at this opportunity of prolonging my stay at the Island of Chiloe, hoping that better weather would enable me to make an excursion into the interior. But the sky still continued overcast, and the rain poured incessantly. One day, however, I undertook a journey to Castro, in company with the French Chargé d'Affaires to Peru, one of my fellow passengers on the voyage. A merchant accommodated

us with two horses, saddled in the Chilian manner; but he warned us to be on our guard, as horses were often restive when just returned from their summer pasturage. We set off very promisingly. The commencement of our ride was pleasant enough, though the road was steep and very difficult. It sometimes lay over smooth slippery stones, then through deep marshes, or over scattered logs of wood, which bore evidence of attempts to render the ground passable, by this rude kind of paving. After we had ridden for several hours in the forest, the rain checked our further progress, and we turned, to retrace our way back. Our horses seemed well pleased with the project of returning home. For a time they proceeded with wonderful steadiness; but on coming to a part of the road where the ground was comparatively level and firm, they quickened their pace, and at length dashed forward through the wood, uncontrolled by the bridle. The long narrow saddle, with its woollen covering, the crescent-shaped wooden stirrups, and the heavy spurs, with their clumsy rowels, baffled all our skill in horsemanship, and it was with no little difficulty we kept our seats. We thought it best to give the animals the rein, and they galloped through the umbrageous thickets, until at last, panting and breathless, they stuck in a morass. Here we recovered our control over them, and pursued the remainder of our journey without further accident, though we were drenched to the skin on our return to the town.

On subsequent days, I took my rambles on foot, and found myself richly rewarded thereby. The long evenings we spent in the company of our host and the harbor-master, from both of whom I obtained some useful information respecting the island.

Chiloe is one of the largest islands of the Archipelago which extends along the west coast of South America, from 42° south lat. to the Straits of Magellan. It is about 23 German miles long, and 10 broad. A magnificent, but almost inaccessible forest covers the unbroken line of hills stretching along Chiloe, and gives to the island a charming aspect of undulating luxuriance. Seldom, however, can the eye command a distinct view of those verdant hills; for overhanging clouds surcharged with rain, almost constantly veil the spreading tops of the trees. At

most parts of the shore the declivity is rapid. There are many inlets, which, though small, afford secure anchorage; but there are no harbors of any magnitude. While Castro was the capital of the island, Chacao was the principal port; but San Carlos having become the residence of the governor, this latter place is considered the chief harbor; and with reason, for its secure, tranquil bay unites all the advantages the navigator can desire on the stormy coast of South Chile. At Chacao, on the contrary, reefs and strong currents render the entrance dangerous and the anchorage insecure.

Chiloe is but little cultivated, and scantily populated. If the statement of my informant, the harbor-master, be correct, Chiloe and the adjacent small islands contain only from 48,000 to 50,000 inhabitants, part of whom live in *ranchos* (huts), and part in a few villages. Next to San Carlos, and the half-deserted Castro, to which the title of "City" is given, the chief places are Chacao, Vilipilli, Cucao, Velinoe. It is only in the neighborhood of these towns or villages that the forest trees have been felled, and their removal has uncovered a fertile soil, which would reward by a hundred-fold the labor of the husbandman.

The climate of the island is moist and cool, and upon the whole very unpleasant. During the winter months, the sun is seldom seen; and it is a proverbial saying in Chiloe, that it rains six days of the week, and is cloudy on the seventh. In summer there are occasionally fine days, though seldom two in succession. The thick forests are therefore never dry, and beneath the trees, the vegetation of the marshy soil is peculiarly luxuriant. The constant moisture is one of the greatest obstacles to agriculture. To clear the ground for cultivation, it would be necessary to burn the forests, and as the trees are always damp, that could not be done without great difficulty. To some kinds of culture the soil is not favorable. The cereals, for example, seldom thrive in Chiloe; the seed rots after the ear is formed. Maize grows best; though it shoots too much into leaf, and bears only small grain. The damp soil, on the other hand, is favorable to potatoes, of which vast quantities are planted. There is a degenerate kind of potato, very abundant in Chiloe. On bisection it exhibits a greater or lesser number of concentric rings,

alternately white and violet; sometimes all of the latter color. It is well known that southern Chile is the native land of the potato. In Chiloe and also in the neighboring islands, potatoes grow wild; but, both in size and flavor, they are far inferior to the cultivated kind. Like the maize, they shoot up in large leaves and stalks. The climate is also very favorable to the different kinds of the cabbage plant; but peas and beans do not thrive there.

In the forests there are often clear spots on which the grass grows to a great height, and supplies excellent pasturage for numerous herds of cattle. The inhabitants of Chiloe breed for their own use, horses, oxen, sheep, and swine. The horses are small, and not handsomely formed, but very spirited and strong. Some are scarcely twelve hands high. The cows are small and lank, and the same may be said of the swine and sheep. It is remarkable that all the rams have more than two horns; the greater number have three, and many are furnished with four or five. I afterwards observed the same in Peru. The domestic animals on this island, notwithstanding the abundance of food, are small, and sickly-looking. I believe the cause to be want of care, for they remain all the year round exposed to every sort of weather and discomfort.

The population of Chiloe consists of Whites, Indians, and people of mixed blood. The Indians are now few in number, and those few are chiefly in the southern part of the island, and the adjacent islets. They are of the Araucana race, and appear to be a sept between that race and the people of Tierra del Fuego, on the one side, and the Pampas Indians on the other. People of mixed races form by far the greater portion of the population. They are met with in every variety of amalgamation. Taken in general, they are the reverse of handsome. They are short and thick-set, and have long, straight coarse hair. Their faces are round and full, their eyes small, and the expression of their countenances is unintelligent. The whites are either Chilenos or Spaniards: the latter are almost the only Europeans who have become settlers here.

The principal town, San Carlos, called by the natives "Ancud," lies on the northern coast of a very fine bay. Without a good chart, the entrance to this bay is difficult. Numerous

small islands form a labyrinth, out of which vessels, if not commanded by very experienced pilots, cannot easily be extricated. Besides, near the land, the sky is usually obscured by clouds which prevent any observation for the latitude, as the sun's altitude cannot be taken even at noon; and when the sun gets lower, the hills, which would serve as guiding points, cease to be distinctly seen.

Several whalers, which for some days vainly endeavored to work through this passage, were afterwards obliged to direct their course northward, and to cast anchor in Valivia. One of the largest islands at the entrance of the bay is San Sebastian, where there are numerous herds of cattle. Cochino is a small island, distant only a few miles from San Carlos. It is hilly, and thickly crowned with brush-wood. It has only one landing-place, and that is rather insecure for boats. The water of the bay is remarkably clear and good; only round the little island of Cochino, and along the harbor, it is covered with an immense quantity of sea-moss, which often renders the landing difficult. It frequently happens that commanders of ships, wishing to go on board to make sail during the night, get out of the right course, and instead of going to the ship, steer to Cochino and get into the moss, where their boats stick fast, till returning day-light enables them to work their way out.

The poor inhabitants boil this sea-moss and eat it. It is very salt and slimy, and is difficult of digestion. Among the people of Chiloe, this sea-moss occupies an important place in surgery. When a leg or an arm is broken, after bringing the bone into its proper position, a broad layer of the moss is bound round the fractured limb. In drying, the slime causes it to adhere to the skin, and thus it forms a fast bandage, which cannot be ruffled or shifted. After the lapse of a few weeks, when the bones have become firmly united, the bandage is loosened by being bathed with tepid water, and it is then easily removed. The Indians of Chiloe were acquainted, long before the French surgeons, with the use of the paste bandage.

The town of San Carlos is dirty; the streets unpaved, narrow, and crooked. The houses, with few exceptions, are wretched wooden huts, for the most part without windows; but

there is a board divided in the middle horizontally, the upper part of which being open, it serves for a window, and when both parts are open, it forms a door. The flooring usually consists merely of hard-trodden clay, covered with straw matting. The furniture, like the apartments, is rude and inconvenient. These remarks of course apply to the habitations of the very poor class of people. The richer families live in more comfortable style. Of the public buildings, the custom-house and the governor's residence are the most considerable, but both make a very indifferent appearance. In front of the governor's house, which occupies a tolerably large space of ground, in the upper part of the town, a sentinel is constantly stationed. This sentinel parades to and fro, without shoes or stockings, and not unfrequently without a coat, his arms being covered only by his shirt sleeves. As to a cap, that seems to be considered as unnecessary a part of a well-conditioned uniform, as shoes and stockings. After sunset every person who passes the governor's house is challenged. "Who goes there?" is the first question; the second is *Que gente?* (what country?) The sailors amuse themselves by returning jocular answers to these challenges; and the sentinel, irritated by their jeers, sometimes runs after them through part of the town, and when weary of the chace returns to his post.

Poverty and uncleanliness vie with each other in San Carlos. The lower class of the inhabitants are exceedingly filthy, particularly the women, whose usual dress is a dirty woollen gown, and a greasy looking mantilla. In their damp gloomy habitations, they squat down on the floor, close to the *brasero* (chafing pan), which also serves them as a stove for cooking. They bruise maize between two stones, and make it into a thick kind of soup or porridge. When employed in paring potatoes or apples, or in cutting cabbages, they throw the skins and waste leaves on the ground, so that they are frequently surrounded by a mass of half-decayed vegetable matter. Their favorite beverage is *mate* (the Paraguay tea), of which they partake at all hours of the day. The mode of preparing and drinking the *mate* is as follows: a portion of the herb is put into a sort of cup made from a gourd, and boiling water is poured over it. The mistress of

the house then takes a reed or pipe, to one end of which a strainer is affixed,* and putting it into the decoction, she sucks up a mouthful of the liquid. She then hands the apparatus to the person next to her, who partakes of it in the same manner, and so it goes round. The mistress of the house and all her guests suck the aromatic fluid through the same pipe or *bombilla*.

The poverty of the people is extreme. Specie is seldom current, and is exclusively in the hands of a few traders, who supply the Indians with European articles, in payment of their labor, or in exchange for the produce of the island, which is sent to Chile and Peru. With much surprise I learned that there is no saw-mill in Chiloe, where the vast abundance of trees would furnish a supply of excellent deals, for which ready and good payment would be obtained in Peru.

The inhabitants direct their industry chiefly to agriculture and navigation. But rude and imperfect are their implements for field labor, as well as their nautical vessels. To a stranger nothing can appear more extraordinary than their mode of ploughing. As to a regular plough, I do not believe such a thing is known in Chiloe. If a field is to be tilled, it is done by two Indians, who are furnished with long poles, pointed at one end. The one thrusts his pole, pretty deeply, and in an oblique direction, into the earth, so that it forms an angle with the surface of the ground. The other Indian sticks his pole in at a little distance, and also obliquely, and he forces it beneath that of his fellow-laborer, so that the first pole lies as it were above the second. The first Indian then presses on his pole, and makes it work on the other, as a lever on its fulcrum, and the earth is thrown up by the point of the pole. Thus they gradually advance, until the whole field is furrowed by this laborious process.

The Chiloe boats are merely hulks. They obey the helm reluctantly, but they bear away before the wind. Several individuals usually join together, and convey in these boats, the produce of their respective localities, in the southern villages, to San Carlos. Women as well as men take their turn at

* *Bombilla* is the name given to this pipe, and the cup or gourd in which the decoction of the *mate* is prepared, is called the *macerina*.

rowing the boats, and after being out all day, they run into some creek, where they pass the night. When a favorable breeze springs up, they hoist a sail, made of *ponchos*. The poncho is an important article of male clothing in this country. It consists of a piece of woollen cloth, measuring from 5 to 7 feet long, and from 3 to 4 feet broad. In the middle there is a slit from 12 to 14 inches long; through this slit the wearer passes his head. The poncho thus rests on the shoulders, and hangs down in front and behind as low as the knees. At the sides, it reaches to the elbow, or middle of the forearm, and thus covers the whole of the body. The carters and wagoners in Swabia wear, in rainy weather, a covering somewhat resembling the poncho, which they make out of their woollen horse-coverings. When a Chiloe boat is on its passage on the coast, and a sail happens to be wanted, the men give up their ponchos and the women their mantillas. The slits in the ponchos are stitched up, and both ponchos and mantillas being sewn together are fixed to a pole or bar of wood, which is hoisted to a proper position on the mast. This patchwork sail can only be serviceable when the wind is fresh. At nightfall, when the boat runs into one of the creeks for shelter, the sail is lowered, and the sewing being unpicked, the ponchos and mantillas are returned to their respective owners, who wrap themselves in them, and go to sleep.

There is but little trade in San Carlos, for Chile itself possesses in superfluity all the productions of Chiloe, and the inhabitants of the island are so poor, and their wants so limited, that they require but few foreign articles. The port is therefore seldom visited by any trading vessel from Europe. Some of the Chiloe boats keep up a regular traffic along the coast. They carry wood, brooms, hams, and potatoes, to Valparaiso, Arica, Callao, &c., and they bring back in return, linen, woollen and cotton cloths, ironware, tobacco, and spirits.

North American and French whalers have for several years past been frequent visitors to San Carlos, as they can there provide themselves, at a cheap rate, with provisions for the long fishing season. All the captains bring goods, which they smuggle on shore, where they sell or exchange them at a high profit. A custom-house officer is, indeed, sent on board every vessel to ex-

amine what is to be unshipped; but a few dollars will silence him, and make him favor the contraband operations, which are carried on without much reserve. A French captain brought to Chiloe a quantity of water-proof cloaks and hats, made of a sort of black waxed cloth, and sold them to a dealer in San Carlos. To evade the duty, he sent his men on shore each wearing one of these hats and cloaks, which they deposited in the dealer's store, and then returned on board the ship, dressed in their sailors' garb. This was repeated so often, that at length it was intimated to the captain that, if his men had a fancy to come on shore with such hats and cloaks they would be permitted to do so, but it must be on condition of their returning on board dressed in the same costume.

The people of Ancud (San Carlos), formerly so simple and artless, have gradually become corrupt and degenerate, since their frequent intercourse with the whale-fishers. Among the female portion of the population, depravity of morals and unbecoming boldness of manners have in a great degree superseded the natural simplicity which formerly prevailed. All the vices of the lowest class of sailors, of which the crews of the South Sea Whalers are composed, have quickly taken root in San Carlos, and the inseparable consequences of those vices will soon be fatal to the moral and physical welfare of the inhabitants.

In the interior of the island of Chiloe there are few quadrupeds. The largest, the domestic animals excepted, is a fox (*Canis fulvipes*, Wat.), which was first discovered by the naturalists who accompanied Capt. King's expedition. This is the only beast of prey. The coast abounds in seals of the sea-dog species (*Otaria chilensis*, Müll., *Otaria Ursina*, Per., *Otaria jubata*, Desm.)—in sea-otters (*Otaria chilensis*, Ben.)—and in the water mouse (*Myopotamus Coypus*, J. Geoff). Among the birds, there are some very fine species of ducks, well worthy of notice, which are also found on the continent of South America. There is the little Cheucau (*Pteroptochus rubecula*, Kettl.), to which the Chilotes attach various superstitious ideas, and pretend to foretell good or ill luck from its song. The modulations which this bird is capable of uttering are numerous, and the natives assign a particular meaning to each. One day, when I wished to have

some shooting, I took an Indian lad with me. Having levelled my gun at one of these birds, which was sitting in a low bush, and uttering its shrill *huit-huit*, my young companion firmly grasped my arm, earnestly entreating me not to shoot the bird, as it had sung its unlucky note. But my desire to possess a specimen was too great to be thus baffled, so I fired my gun and brought it down. I was engaged in examining the elegant little bird, when a mule, probably alarmed by the shot, came running at full speed towards the spot where we were, and we deemed it prudent to get behind a hedge as speedily as possible. The infuriated mule made an attack on my gun, which was resting against the hedge. It was thrown down, bitten, and trampled on by the mule. The Indian boy turned to me, with a serious countenance, and said :—"It is well if we escape further danger! I told you the bird had piped bad luck!"

The day fixed for our departure from Chiloe now approached. The wind, which had heretofore been unfavorable for leaving the port, promised to change, and we began to ship provisions. Whilst I was waiting for the boat which was to take me on board, I had an opportunity of observing the dexterity with which the Indians slaughter their cattle. This business is performed on the Mole, where, in the space of a quarter of an hour, and by two men only, an ox is killed, and the carcase cut up into the proper pieces. When it is necessary to ship live oxen, the animals are brought to the shore, where their feet are bound together, and then they are rolled over planks into the *lancha* (boat). On nearing the ship, the Indians tie a rope round the animal's horns, and then the sailors hoist him up with a strong tackle. It is a curious sight to behold a strongly-bound struggling ox, hanging by the tackle, and swinging between wind and water. My little Chilotean pony, which I intended to take to Peru, was dealt with more gently: he was got on board with a girth, purposely made for hoisting horses on board ship.

At length we sailed out of the bay with a fresh easterly wind. Three coasting boats, one of which was heavily laden with brooms, left the roads at the same time, and their crews said they hoped to reach Valparaiso before us. But they had too great confidence in their round-bottomed keels, for they did not anchor

in their place of destination till five or six days after our arrival. The wind soon got up, blowing W.N.W., but rather flat. In the course of the night, during the second watch, we were roused from our sleep by a heavy shock, followed by a peculiarly tremulous motion of the whole ship. We concluded we had struck in passing over some hidden rock. The lead was thrown, but no ground was found; the pumps were set a-going, but we were free of water. The captain attributed the shock to an earthquake, and on our arrival at Chile, his conjecture was confirmed. In Valdivia, in the latitude of which place we were at the time, a severe shock of an earthquake had been experienced.

After a pretty favorable passage of seven days, we anchored on the 30th of June in the harbor of Valparaiso.

CHAPTER II.

Valparaiso and the adjacent country—The Bay—Aspect of the Town—Lighthouses—Forts—Custom House—Exchange—Hotels and Taverns—War with the Peru-Bolivian Confederation—First Expedition—Preparations for the Second Expedition—Embarkation of the Troops—Close of the Port—July Festival in honor of the French Revolution—The *Muele*, or Mole—Police—*Serenos*, or Watchmen—Moveable Prisons—Clubs—Trade of Valparaiso—Santiago—Zoology.

THE impression produced by the approach to Valparaiso on persons who see land for the first time after a sea voyage of several months' duration, must be very different from that felt by those who anchor in the port after a passage of a few days from the luxuriantly verdant shores of the islands lying to the south. Certainly, none of our ship's company would have been disposed to give the name of "Vale of Paradise" to the sterile, monotonous coast which lay outstretched before us; and yet, to the early navigators, its first aspect, after a long and dreary voyage, over the desert ocean, might naturally enough have suggested the idea of an earthly paradise.

Along the sea coast there extends a range of round-topped hills, 15 or 16 hundred feet high, covered with a grey-brownish coating, relieved only here and there by patches of dead green, and furrowed by clefts, within which the bright red of tile-roofed houses is discernible. Half-withered cactus trees, the only plants which take root in the ungenial soil, impart no life to the dreary landscape. The hills continue rising in undulating outlines, and extend into the interior of the country, where they unite with the great chain of the Andes.

The bay of Valparaiso is open on the north and west; on the south it is protected by a little promontory called the Punta de Coromilla. In this direction the shore is steep and rocky, and

the waves break against it with great fury. From the Punta de Coromilla the bay extends from east to north-west in the form of a gently curved crescent, having a sloping, sandy beach, which rises very gradually towards the hills. On the north side of the bay there are several small inlets, almost inaccessible and edged with steep rocks. The bay is sometimes unsafe, for it is completely unsheltered on the north, and the heavy gales which blow from that point frequently end in storms. At those times the bay is furiously agitated, the waves sometimes rising as high as in the open sea, and the ships are obliged to cast their sheet-anchors. Many vessels have at various times been driven from their anchorage, cast ashore, and dashed to pieces on a rock called Little Cape Horn; for, when a violent gale blows from the north, it is impossible to get out to sea. Sailors are accustomed to say that in a violent storm they would rather be tossed about on the wide ocean than be at anchor in the bay of Valparaiso. But against the south wind, though sometimes no less boisterous than the northern gales, the harbor affords secure refuge, being perfectly sheltered by the Punta de Coromilla.

The town of Valparaiso looks as if built on terraces at the foot of the range of hills above mentioned. Northward it stretches out on the level sea shore, in a long double row of houses called the Almendral: towards the south it rises in the direction of the hills. Two clefts or chasms (quebradas) divide this part of the town into three separate parts consisting of low, shabby houses. These three districts have been named by the sailors after the English sea terms Fore-top, Main-top, and Mizen-top. The numerous quebradas, which all intersect the ground in a parallel direction, are surrounded by poor-looking houses. The wretched, narrow streets running along these quebradas are, in winter, and especially at night, exceedingly dangerous, Valparaiso being very badly lighted. It sometimes happens that people fall over the edges of the chasms and are killed, accidents which not unfrequently occur to the drunken sailors who infest these quarters of the town.

Viewed from the sea, Valparaiso has rather a pleasing aspect, and some neat detached houses built on little levels, artificially made on the declivities of the hills, have a very picturesque ap-

pearance. The scenery in the immediate background is gloomy; but, in the distance, the summit of the volcano Aconcagua, which is 23,000 feet above the level of the sea, and which, on fine evenings, is gilded by the rays of the setting sun, imparts a peculiar charm to the landscape.

The bay is protected by three small forts. The southernmost, situated between the lighthouse and the town, has five guns. The second, which is somewhat larger, called el Castillo de San Antonio, is in the southern inlet of the bay. Though the most strongly fortified of the three, it is in reality a mere plaything. In the northern part of the town, on a little hillock, stands the third fort, called el Castillo del Rosario, which is furnished with six pieces of cannon. The churches of Valparaiso are exceedingly plain and simple, undistinguished either for architecture or internal decoration.

The custom-house is especially worthy of mention. It is a beautiful and spacious building, and from its situation on the Muele (Mole) is an object which attracts the attention of all who arrive at Valparaiso. In the neighborhood of the custom-house is the exchange. It is a plain building, and contains a large and elegant reading-room, in which may always be found the principal European newspapers. In this reading-room there is also an excellent telescope by Dollond, which is a source of amusement, by affording a view of the comical scenes sometimes enacted on board the ships in the port.

The taverns and hotels are very indifferent. The best are kept by Frenchmen, though even those are incommodious and expensive. The apartments, which scarcely contain necessary articles of furniture, are dirty, and often infested with rats. In these houses, however, the table is tolerably well provided; for there is no want of good meat and vegetables in the market. The second-rate taverns are far beneath the very worst in the towns of Europe.

On our arrival in Valparaiso, a vast deal of activity and bustle prevailed in the harbor. Chile had declared war against the Peru-Bolivian confederation, and was fitting out a new expedition for the invasion of Peru. At its head were the banished Peruvian president Don Augustin Gamarra, and the Chilian

general Bulnes. The growing power of Santa Cruz, who set himself up as protector of a confederation between Bolivia and Peru, had given alarm to the Chilian government. It was apprehended, and not without reason, that the independence of Chile might be threatened by so dangerous a neighbor. Santa Cruz had given umbrage to Chile by several decrees, especially one, by which merchant vessels coming direct from Europe into a Bolivian or Peruvian port, and there disposing of their cargoes, were subject to very low duties, whilst heavy imposts were levied on ships landing any part of their cargoes in a Chilian port. This law greatly increased the trade of Peru; but it was prejudicial to Chile. This and other grounds of offence, joined to the representations of the fugitive Ex-president Gamarra and his adherents, determined the Chilian government to declare war. An expedition under the command of General Blanco was sent to Peru; but Santa Cruz was prepared to receive the invaders, and in the valley of Arequipa he surrounded the Chilian forces so completely that they were obliged to surrender without striking a blow. Santa Cruz magnanimously allowed General Blanco to make a very favorable capitulation. The soldiers were sent home to their country; but the horses were detained and sold by the conquerors to the conquered.

The generosity of Don Andres Santa Cruz did not meet its due return on the part of the Chilian government. The treaty of peace concluded by Blanco was not ratified in Santiago, the minister declaring that the general was not authorized to negotiate it. Hostilities were kept up between the two states, and at length a second and more important expedition was fitted out. It sailed whilst we were lying in the harbor.

No sooner had we cast anchor than several officers of the Chilian army came on board to inquire whether we had any swords to dispose of, assuring us that they, together with the majority of their comrades, were yet unprovided with arms, and knew not where to procure them. The captain informed them that there were no swords in our cargo; but that he had a few sabres, &c., which he was very willing to sell. They were immediately produced, and some were purchased; among the number was a heavy broad-sword, about five feet in length,

which had once belonged to a cuirassier in Napoleon's guard. The Chilian officer who bargained for it was a delicate-looking stripling, who, with both hands, could scarcely raise the heavy weapon. He, nevertheless, flattered himself that it would enable him to achieve great deeds in battle and deal death among the Peruvians. Ten months afterwards I met this hero on a march among the mountains of Peru. He had, girded on, a light little sword, like a tooth pick or a bodkin compared with the formidable weapon he had discarded, and which a sturdy negro was carrying behind him. I could not refrain from asking the officer whether the trusty broad-sword had not done good service in the battle of Yungay; but he candidly acknowledged that he had not attempted to use it, as he found it much too unwieldy.

The Chilian squadron sent to Peru consisted of twenty-seven transport ships, and eight ships of war. Almost all were in a wretched condition, having but few guns, and manned by very insufficient crews. The largest vessels were the three corvettes, Confederacion, Santa Cruz, and Valparaiso. Only one ship, the schooner brig Colocolo, was distinguished for solidity and swift sailing. The fleet was commanded by an admiral of little judgment and experience.

Among the crew there were but few Chilenos: most of the men were Chilotes and French, English and American deserters. The officers commanding the ships were almost all Englishmen. The transport ships were heavily laden, some carrying troops, and others provisions. These provisions consisted of sesino (dried beef), chalonas (whole sheep dried), maize, potatoes, dried fruits and barley, together with hay for the horses. The embarkation of the horses was most clumsily managed: many were strangled in being hoisted up the ships' sides, others slipped through their girths and were severely hurt by falling, and a considerable number of the poor animals died before the ships left the port. Every morning we saw dozens of dead horses thrown over board. The continued lurching of the vessels in which the cavalry was embarked, bore evidence of the inconvenient situation of the horses between decks.

At the beginning of July the whole squadron sailed for the

harbor of Coquimbo, where the troops were decimated by the small-pox.

There prevailed in Chile a feeling very adverse to this campaign; so much so that most of the troops were embarked by force. I was standing on the *muele* when the Santiago battalion was shipped. The soldiers, who were in wretched uniforms, most of them wearing ponchos, and unarmed, were bound together two-and-two by ropes, and absolutely driven into the boats.

This war proved most unfortunate to Peru, a result which, however, cannot certainly be ascribed either to the courage of the enemy's troops or the judgment of their commanders. We shall presently see the circumstances which combined to secure triumph to the Chilenos.

I and my fellow-voyagers were also sufferers by the war, our captain having imprudently announced his intention of selling the Edmond to the protector Santa Cruz, as she might easily have been transformed into an excellent corvette. She was a quick sailer, tight-built, carrying ten guns of moderate calibre, and she might easily have mounted ten more.

The captain's intention having reached the knowledge of the Chilian government, the natural consequence was, that the port was closed, a measure deemed the more necessary inasmuch as an American captain was suspected of entertaining the design of selling his ship to the Peruvians. It was not until the fleet had had time to reach Peru, and the first blow was supposed to be struck, that the embargo was raised, and we obtained leave to depart. We lay in the port of Valparaiso five-and-forty days. To me the most annoying circumstance attending this delay was, that I could not absent myself from the port longer than twenty-four hours at a time, as the ship was constantly in readiness to get under weigh, as soon as we should receive permission to sail, which was hourly expected. My excursions were, therefore, confined to the immediate neighborhood of the town; and even there my walks and rides were much impeded by constant stormy and rainy weather.

On the 29th of July, preparations were made on board our ship for celebrating the Paris revolution of 1830. At eight o'clock

in the morning we fired three guns, and the Edmond was soon decorated from her deck to her mast-heads with flags and streamers. At the fore-mast gaily floated the Swiss flag, probably the first time it had ever been seen in the Pacific. When the guns on board the French ship-of-war had ceased firing, we began our salute; but, as we had only ten guns, it was necessary to load a second time. Our seamen, being unused to this kind of duty, did not observe due precaution, and the consequence was that one of them had his hand so dreadfully shattered that immediate amputation was indispensable. The day's rejoicing was thus suddenly brought to a melancholy close.

The mole in front of the custom-house is exceedingly dangerous; so much so, that, during the prevalence of stormy north winds, it is impossible to pass along it. From the shore a sort of wooden jetty stretches into the sea, at the distance of about sixty paces. This jetty has been sometimes partially, and at other times completely, destroyed by the waves. The harbor-master's boats, and those belonging to the ships-of-war, land on the right side; the left side is allotted to the boats of the merchant ships. On the shore there are always a number of boats ready to convey persons who wish to go on board the different ships. Each boat is generally rowed by two Indians. Whenever any person approaches the shore he is beset by the boatmen, who throng round him, and alternately, in English and Spanish, importune him with the questions,—"Want a boat?" "Vamos á bordo?"

Day and night, parties of custom-house officers go round the port for the purpose of preventing smuggling. In this, however, they only partially succeed; for they detect only petty smugglers, whilst those who carry on contraband trade on a large scale elude their vigilance. The captains of French vessels are notorious for this kind of traffic, and they frequently succeed in landing vast quantities of goods surreptitiously.

The police of Valparaiso is probably as good as it is in any part of South America. *Serenos* (watchmen) perambulate the streets on foot and on horseback, and continually give signals one to another by blowing small whistles. For personal safety there is little risk, probably not more than in the most populous cities

of Europe. It is true that nocturnal murders sometimes take place; but the police speedily succeed in capturing the criminals, who, after a summary trial, are shot.

In Valparaiso, as in most of the towns on the western coast of South America, the *serenos* go about all night, calling the hours and announcing the state of the weather. At ten o'clock they commence with their—"*Viva Chile!*"—"*Ave Maria purissima!*"—*Las diez han dado y sereno!*" (past ten o'clock and a fine night!) or *nublado* (cloudy),—or *lloviendo* (raining). Thus, they continue calling every half-hour till four o'clock in the morning. Should an earthquake take place it is announced by the *sereno* when he goes his round in the following half hour. However, the phenomenon usually announces itself in so positive a way, that the inhabitants may easily dispense with the information of the *serenos*.

Among the most remarkable objects in Valparaiso may be numbered the moveable prison. It consists of a number of large covered wagons, not unlike those used for the conveyance of wild beasts. In the inside of each wagon, planks are fixed up like the board bedsteads in a guard-house, affording resting-places for eight or ten prisoners. A guard is stationed at the door, which is at the back of the wagon; and in the front a sort of kitchen is constructed. These wagons are drawn by the prisoners themselves, who are for the most part destined to work in the streets and roads, and, accordingly, they take their prison with them when they are ordered to any considerable distance from the town. To a country in which there may be said to be no winter, this sort of nomad prison is exceedingly well-suited, and the prisoners may be conveyed from place to place at very little expense.

I went into some of these moveable prisons, and I must confess that I never beheld such an assemblage of ill-looking faces as were collected within them. In the countenances of some of the prisoners unbridled passion and degrading sensuality were so plainly and so odiously portrayed, that one shuddered to reflect that such features could be an index of the human mind. Most of them were Creole Indians; but there were a few Europeans among them. To me it was melancholy to behold the European,

who might be supposed to possess some little share of education, mounting the prison steps chained to his fellow-criminal, the uncivilized Chileno.

In Valparaiso, as in all seaports, there is a heterogeneous mixture of different countries, nations, languages, and manners, amidst which the national character of the country is entirely lost. The trade in European goods is very extensive, but almost exclusively in the hands of a few great North American and English houses, who supply the whole country with the articles they import. At times, such is the overstock of importations, that goods are sold at lower prices in Valparaiso than in Europe. The warehouses are so filled with some sorts of merchandise, that without any fresh supplies there would be sufficient for some years to come.

Among the clerks in the mercantile houses I met with a great number of Germans, who all maintain an intimate association with each other. They have formed themselves into a union, and they have a very commodious place in which they hold their meetings. Following their example, the English have united together and established several clubs. The French have not gained any considerable footing in this part of South America, in which there are scarcely two French mercantile houses of any consequence. On the other hand, there is abundance of French hairdressers, tailors, shoemakers, jewellers, confectioners, and *Chevaliers d'industrie*. Neither is there any want of *Modistes Parisiennes et Bordelaises*.

Valparaiso is yearly increasing in extent and in the numbers of its inhabitants; but the town makes little improvement in beauty. That quarter which is built along the Quebradas is certainly susceptible of no improvement, owing to the unfavorable locality, and it is only the newly-built houses on the heights that impart to the town anything like a pleasing aspect. In laying out buildings in a place like Valparaiso, the aid of art should make amends for the defects of nature. My visits to Valparaiso did not produce a very favorable impression on me. The exclusively mercantile occupations of the inhabitants, together with the poverty of the adjacent country, leave little to interest the attention of a mere transient visitor. The case may be differ-

ent with persons who, having longer time than I had to stay in the town, may enjoy opportunities of entering into society, and occasionally visiting the pleasant valley of Quillota and the interesting capital Santiago.

The latter is thirty leagues distant from the port; but a very active communication is kept up between the two places, and better roads would, no doubt, increase the intercourse. A few years ago the roads were very unsafe; but now the journey may be performed without danger if the *Birlocheros* (coach-drivers) are in the least degree careful.

The zoology of the neighborhood of Valparaiso is not very interesting, though more so along the sea-shore than in parts further inland. Among the Mammalia are sometimes seen the fox (*Canis Azaræ*, Wild.), and the pole-cat. In the immediate vicinity of the town a very large mouse is seen in the burrows of the ground; it is of the eight-toothed species (*Octodon Cummingii*, Benn.), and has a brush-formed tail. As the fields round Valparaiso are not cultivated these animals do no harm, otherwise they would be the plague of agriculture, and probably are so in the interior parts of the country. Now and then a sea-dog may be observed in the bay; but the whale is seldom seen, and whenever one appears he is immediately killed, as there is always a whaler at anchor and not far off.

In the market, live condors are frequently sold. These birds are caught in traps. A very fine one may be purchased for a dollar and a half. I saw eight of these gigantic birds secured in a yard in a very singular manner. A long narrow strap of leather was passed through the nostrils of the bird and firmly knotted at one end, whilst the other end was fastened to a wooden or iron peg fixed in the ground. By this means the motion of the bird was not impeded: it could walk within the range of a tolerably wide circle; but on attempting to fly it fell to the ground head foremost. It is no trifling matter to provide food for eight condors; for they are among the most ravenous of birds of prey. The owner of those I saw assured me that, by way of experiment, he had given a condor, in the course of one day, eighteen pounds of meat (consisting of the entrails of oxen); that the bird devoured the whole, and ate his allowance on the

following day with as good an appetite as usual. I measured a very large male condor, and the width from the tip of one wing to the tip of the other was fourteen English feet and two inches —an enormous expanse of wing, not equalled by any other bird except the white albatross (*Diomedea exulans*, Linn.). The snipes (*Scolopax frenata*, III.) found on the little plain between the bay and the light-house are in color precisely like those of Europe, from which, however, they differ in having two more feathers in their tails. Small green parrots, little bigger than finches, are tamed and brought to Valparaiso from the interior of the country. These parrots are very docile, and are easily taught to speak; but they cannot endure cold, and require to be tended with very great care. In the bay itself there are numerous cormorants, and occasionally penguins and large flights of the cut-water or shear-bill (*Rhynchops nigra*, Linn.). The latter is distinguished by a sharp-pointed bill closing laterally, the under mandible being about double the length of the upper one. But the most beautiful bird in the bay of Valparaiso is the majestic swan (*Cygnus nigricollis*, Mol.), whose body is of dazzling white, whilst the head and neck are black.

On the 13th of August we at length obtained leave to sail. Early on the morning of the 14th we weighed anchor; and, as we sailed out of the Bay of Valparaiso, the summit of Aconcagua soon disappeared in the blue horizon.

CHAPTER III.

Juan Fernandez—Robinson Crusoe—Passage to Callao—San Lorenzo—Rise and fall of the coast—Mr. Darwin's opinions on this subject—Callao—The Fortress—Siege by the Spaniards—General Rodil—Siege by the Chilians—The Colocolo—Pirates—Zoology—Road to Lima.

With a favorable east wind we reached, in thirty-six hours, the island of Juan Fernandez, which lies in the latitude of Valparaiso. Ships from Europe, bound to Peru, which do not go into Chile, usually touch at Juan Fernandez to test their chronometers. It consists in fact of three islands, forming a small compact group. Two of them, in accordance with the Spanish names, may be called the Inward Island and the Outward Island, for the most easterly is called *Mas a Tierra* (more to the main land), that to the west is called *Mas a Fuera* (more towards the offing). That to the south, which is almost a naked rock, is the *Isla de Lobos*, which we may call Sea-dog Island. The two first are covered with grass and trees. *Mas a Tierra* is much longer, and better suited for cultivation than *Mas a Fuera*. In form the two islands have a striking resemblance to Flores and Cordua, islands of the group of the Azores. Until within these twenty years, *Mas a Tierra* was the place of exportation for convicts from Chile; but as it was found that the facility of escape is great, none are now sent there. In 1812 a number of prisoners of war were confined there, but the rats, which had increased in an extraordinary degree, consumed all the provisions sent from Chile. Several fruitless attempts have been made to populate the island, but that object is now given up, and it is only occasionally visited by sea-dog hunters. Ulloa speaks of the great number of sea-calves or dogs with which the island was frequented, and distinguishes kinds which belong to the short-eared species. Their skins are excellent, and they sell at a good price in England. Wild goats are numerous, and their

propagation would be excessive were it not for the multitude of dogs, also wild, by which they are destroyed.

There is yet another kind of interest attached to Juan Fernandez. It was on Mas a Tierra that, in 1704, the celebrated English navigator, Dampier, landed his coxswain, Alexander Selkirk, with whom he had quarrelled, and left him there with a small quantity of provisions, and a few tools. Selkirk had lived four years and four months on this uninhabited island, when he was found there by the bucaneers Woods and Rogers, and brought back to Europe. From the notes which he made during his solitary residence, the celebrated Daniel Defoe composed his incomparable work, ROBINSON CRUSOE.

The weather continued favorable, and in about a week we doubled the west point of San Lorenzo Island, where some Chilian cruizers were watching the coast. We soon entered the fine bay of Callao, and cast anchor in the harbor of the *Ciudad de los Reyes*. While rounding the island, an American corvette spoke us. She had left Valparaiso on the same day with us, and sailed also through the strait between San Lorenzo and the main land; yet, during the whole passage, we never saw each other.

No signals were exchanged between us and the shore, and no port-captain came on board. We were exceedingly anxious to know the issue of the Chilian expedition. Hostile ships of war lay off the port, but the Peruvian flag waved on the fort. At last a French naval cadet came on board, and informed us that the Chilians had landed successfully, and had taken Lima by storm two days previously. They were, at that moment, besieging the fortress. We immediately went on shore.

The town presented a melancholy aspect. The houses and streets were deserted. In all Callao we scarcely met a dozen persons, and the most of those we saw were negroes. Some of the inhabitants came gradually back, but in the course of a month scarcely a hundred had returned, and for safety they slept during the night on board merchant ships in the bay. At the village of Bella Vista, a quarter of a mile from Callao, the Chilians had erected their batteries for bombarding the fortress. As it was difficult to obtain provisions, the commanders of the

foreign ships of war sent every morning a small detachment of sailors with a steward to Bella Vista, to purchase meat and vegetables. The merchant-ships joined in the practice, so that early every morning a long procession of boats with flags flying proceeded to the Chilian camp. But a stop was soon put to this, as an English butcher in Callao found means to go with the boats for the purpose of purchasing large quantities of meat, which he afterwards sold at an immense profit, to the fortress. Though the besieged did not suffer from want, they were far from having superfluity.

Having sufficient time to make myself acquainted with the country in the immediate vicinity of Callao, I took advantage of every opportunity for excursions; going from place to place by water, which was more safe than journeying by land.

The bay of Callao is one of the largest and calmest on the west coast of South America. On the south-west, it is bounded by the sterile island of San Lorenzo; on the north it flows into the creeks, which are terminated by the Punta Gorda, the Punta Pernal, the Punta de dos Playas, and the Punta de Doña Pancha. The beach is flat, for the most part shingly, and about the mouth of the Rimac, somewhat marshy. Between the mouth of the Rimac and that of the Rio de Chillon, which is a little southward of the Punta Gorda, there is a tract of rich marshy soil. A small boot-shaped tongue of land stretches from the fortress westward to San Lorenzo. On this spot are the ruins of old Callao.

San Lorenzo is a small, long-shaped island, about 15 English miles in circumference. It is intersected throughout its whole length by a ridge of sharp crested hills, of which the highest point is about 1387 feet above the level of the sea. On the north-eastern side, the declivity is less steep than on the south-west, where it descends almost perpendicularly into the sea. Seals and sea-otters inhabit the steep rocks of the southern declivity, and swarms of sea-birds nestle on the desolate shore. San Lorenzo is separated on the southern side by a narrow strait, from a small rocky island called El Fronton, which is also the abode of numerous seals.

The coasts of Callao and San Lorenzo have undergone very remarkable changes within a few centuries. Mr. Darwin, the

English geologist, is of opinion that this part of Peru has risen eighty-five feet since it has had human inhabitants. On the north-eastern declivity of San Lorenzo, which is divided into three indistinctly marked terraces, there are numbers of shells of those same species of conchylia which are at the present time found living on the coast. On an accurate examination of these shells, Mr. Darwin found many of them deeply corroded. "They have," he says, "a much older and more decayed appearance than those at the height of 500 or 600 feet on the coast of Chile. These shells are associated with much common salt, a little sulphate of lime (both probably left by the evaporation of the spray, as the land slowly rose), together with sulphate of soda, and muriate of lime. The rest are fragments of the underlying sand-stone, and are covered by a few inches thick of detritus. The shells higher up on this terrace could be traced scaling off in flakes, and falling into an impalpable powder; and on an upper terrace, at the height of 170 feet, and likewise at some considerably higher points, I found a layer of saline powder, of exactly similar appearance, and lying in the same relative position. I have no doubt that the upper layer originally existed on a bed of shells, like that on the eighty-five feet ledge, but it does not now contain even a trace of organic structure."* Mr. Darwin adds, that on the terrace, which is eighty-five feet above the sea, he found embedded amidst the shells and much sea-drifted rubbish, some bits of cotton thread, plaited rush, and the head of a stalk of Indian corn.

San Lorenzo does not appear to have been inhabited in very early ages. The fragments of human industry which have been found mixed in the shells have probably been brought thither by fishermen who visit the island, and often pass the night on it.

Darwin further remarks:—"It has been stated that the land subsided during this memorable shock (in 1746): I could not discover any proof of this; yet it seems far from improbable, for the form of the coast must certainly have undergone some change since the foundation of the old town," &c.—"On the island of San Lorenzo there are very satisfactory proofs of elevation,

* Natural History and Geology of the countries visited by the Beagle.

within a recent period; this, of course, is not opposed to the belief of a small sinking of the ground having subsequently taken place."

But satisfactory evidence of the sinking of the coast is not to be obtained in a visit of a few weeks' duration; nor must that evidence rest solely on geological facts, though doubtless they furnish much important data. History must aid the inquiry. Tradition and the recollections of old persons must be attended to. According to these authorities, a change more or less considerable has taken place in the level of the coast, after every great earthquake. If we refer to the account given by Ulloa, and compare the plan of the harbor of Callao, drawn by him in 1742, with the most correct modern charts, we do not find much difference in the representations of the distance between the main-land and San Lorenzo. Four years afterwards the great earthquake occurred, which destroyed the city of Callao, and plunged it into the sea. Subsequently there was a rising of the coast, which could not be inconsiderable, for according to the statements of old inhabitants of Callao, the distance from the coast to San Lorenzo was so inconsiderable that boys used to throw stones over to the island. At present the distance is nearly two English miles. I have no doubt of the general correctness of those statements, for a careful investigation of facts leads to the same conclusion; so that within the last sixty or seventy years the sinking must have been considerable. It must be observed, however, that the ruins on the small tongue of land are not, as Darwin supposes, the remains of the city of Callao, swallowed up by the sea in 1746, but of the Callao which was destroyed by the great earthquake of 1630.

Another proof of the sinking exists in the extensive shallow between the coast of the main-land and San Lorenzo, called the Camotal. In early times this shallow was dry land, producing vegetables, in particular *Camotes* (sweet potatoes), whence the name of this portion of the strait is derived. The inundation took place in the time of the Spaniards, but before 1746, either in the great earthquake of 1687, or in that of 1630.

Northward of the Bay of Callao, near the plantation of Boca Negra, there is a shallow, where, according to records, there ex-

isted a sugar plantation about fifty years ago. Turning to the south of Callao, in the direction of Lurin, we find, at the distance of about two English miles from the coast, two islands or rocks, of which one is called Pachacamac, and the other Santa Domingo. At the time of the Spanish invasion these rocks were connected with the main-land, and formed a promontory. On one of them stood a temple or castle. At what period they were detached from the coast I have not been able to ascertain authentically; but there appears reason to suppose that the separation took place during the violent earthquake of 1586. Attentive investigations to the north of Callao—at Chancay, Huacho, Baranca, &c., would probably bring to light further evidence on this subject.

Between the facts stated by Mr. Darwin and those here adduced, there is considerable discrepancy. On the one hand they denote a rising, and on the other a sinking. But it may be asked, might not both these phenomena have occurred at different times ?* Mr. Darwin's opinion respecting the still-continued rising of the coast does not appear to me to rest on satisfactory evidence. The relics of human industry which he found embedded among shells, at the height of eighty-five feet above the sea, only prove that the elevation has taken place after the land was inhabited by the human race, but do not mark the period at which that elevation occurred. Pieces of cotton thread and plaited rush are no proofs of a very refined degree of civilisation, such as the Spaniards brought with them to Peru, and cannot therefore be taken as evidence that the elevation took place at any period subsequent to the conquest. Garcilaso de la Vega traces the dynasty of the Incas down to the year 1021, a period when the inhabitants of the coast of Peru were tolerably well advanced in civilisation. Fernando Montesinos furnishes facts connected with the history of Peru, of several thousand years' earlier date; and, judging from the number of dynasties, the nature of the laws, &c., it may be inferred that civilisation existed at a period

* Mr. Darwin, in the work just quoted, says in reference to this subject, "Since our voyage, Dr. Tschudi has come to the conclusion, by the comparison of old and modern maps, that the earth both north and south of Lima has certainly subsided."—T.

of even more remote antiquity. It cannot therefore be determined with any accuracy at what time the deposit at San Lorenzo, now eighty-five feet high, was level with the sea, or whether the rise suddenly followed one of those frightful catastrophes which have so often visited the western coast of South America. Then, again, the different degrees of decay presented by the beds of shells seem to indicate that the rising has been gradual; and it may have been going on for thousands of years. Had the coast risen eighty-five feet since the Spanish conquest—that is to say, within the space of three hundred and sixty-two years—the Camotal would long since have again risen above the surface of the sea; for it is very improbable that it sank to a depth exceeding ninety or ninety-five feet. It is evident that risings and sinkings have occurred at various times, and that causes contingent on earthquakes have produced the variations in the rising and falling of the coast.

It is probable that the accurate sounding of the depth of water in the Camotal, at stated intervals, would furnish the best means of ascertaining the rising and sinking of the coast. A variety of circumstances combine to favor the practicability of calculation by this method. For example, no river flows into that part of the bay in which the Camotal is situated. The Rimac, whose mouth lies further to the north, is not sufficiently large to carry any considerable deposit into the bed of the bay: moreover, there is but little tide, and the bay is always calm, being sheltered on the south by the island of San Lorenzo, and north breezes are rare and never violent.

I may here mention a singular phenomenon which has in latter times often occurred at Callao, and which, in 1841, I had myself the opportunity of observing. About two in the morning the sea flowed from the shore with greater force than in the strongest ebb; the ships farthest out were left dry, which is never the case in an ebb tide. The alarm of the inhabitants was great when the sea rushed instantly back with increased force. Nothing could withstand its fury. Meanwhile there was no commotion of the earth, nor any marked change of temperature.

In the earthquake of 1746 Callao was completely overwhelmed by the sea. Several travellers have related that on calm days

with a clear sky the old town may be seen beneath the waves. I have also heard the same story from inhabitants of Callao. It is doubtless a mere fable. Under the most favorable circumstances I have often examined the spot—the Mar brava, as it is called—without being able to discover a trace of the ruins of old Callao.

The existing town of Callao is small, and by no means pleasant. In winter it is damp and dirty, and in summer so dusty that in passing through the streets one is almost choked. Most of the houses are very slightly built, and they are usually only one story high. The walls are constructed of reeds, plastered over with loam or red clay. All the roofs are flat, being made of straw mats laid on a frame-work of reeds, which is also plastered with loam on the under side. The windows are in the roof, and consist of wooden trap-doors, which look very much like bird-cages. They have no glass panes, but gratings made of wooden spars. On the inside there is a window-shutter, and a string hangs down into the apartment, by means of which the shutter can be opened or closed.

The most interesting object seen in Callao is the splendid fortress. Though built on a flat surface close to the sea, it has a magnificent appearance. It consists of two castles, the largest of which the Spaniards named Real Filippe, but since the Revolution it is called Castillo de la Independencia. It has two round towers, wide, but not very high. The court-yards are spacious. The walls are thick, rather low, and surrounded by a ditch, which can be filled with water from the sea. To the south of this castle there is a smaller one, called El Castillo del Sol. Before the War of Independence they mounted both together four hundred pieces of cannon, many of which were of very large calibre. At present they have only sixty pieces of cannon and seventy-one carronades.

On the fortress of Callao the Spanish flag waved long after independence was declared in all the countries of Spanish South America. The Spanish general, Rodil, threw himself into the castle, and with wonderful resolution held out against a siege of a year and a half. During the last three months the Spaniards

suffered all the privations and miseries which a besieged army must endure within the tropics.

Lord Cochrane blockaded the fortress by sea, and General Bartolome Salom drew up his army on the land side. More than 4,000 Spaniards fled to the castle with all their valuable property, and took refuge under Rodil's protection. The greater part of the fugitives belonged to the principal families of the country. When provisions began to fail, the commandant found it necessary to expel 400 women, and one morning they issued forth in a long line of procession. The besiegers supposed that the enemy was making a sortie, and directed the fire of their artillery against the helpless beings, who, uttering loud shrieks, attempted to save themselves by flight. As soon as the mistake was discovered the firing stopped, and the women were conveyed to Lima. Insurrections were several times attempted by the garrison of Callao; but the presence of mind and cool resolution of Rodil in every instance enabled him to suppress these mutinies. The guilty were punished with so much severity that the soldiers soon gave up all further attempts. Horses, asses, dogs and cats, became at length the food of the besieged. Rodil at this time carried on a traffic which does no honor to his character. He had a quantity of provisions stored, which he now sold at immense prices. For a fowl he got from three to four gold ounces. He demanded proportional prices for bread, &c. A contagious fever broke out, and, of more than 4000 persons who had taken refuge in the fortress, only about 200 survived the siege. Hunger and disease at last obliged Rodil to yield. On the 19th of February, 1826, he obtained an honorable capitulation, and embarked with his acquired wealth for Spain, where he was invested with the rank of commander-in-chief of the infantry guards.

Since the independence of Peru this fortress has often been the seat of partial revolutions. Its death-doom has been pronounced by different governments, and it will be a fortunate event for the country when it ceases to exist as a place of warlike defence. It has lately been found useful for other purposes, and a great portion of its vast space has been converted into custom-house warehouses.

The siege of Callao by the Chilians, of which we were eye-witnesses, was by no means such a serious affair as that undertaken by the patriots. The squadron was weak, and the land army inconsiderable. Callao was only cannonaded during the night by some Chilian gun-boats commanded by Englishmen. The artillery of the castle was inefficient, but the Chilian bombs did considerable damage. One Sunday afternoon the little Chilian brig, "Colocolo," sailed in close under the walls of the fortress, and threw in some shot. The fire was immediately returned by all the guns that could be directed to the sea-side; but in vain did the Peruvians expend their shot. Every ball went over the "Colocolo," and fell among the neutral ships. The commander of the French squadron then sent a boat to the fortress, with a declaration that he would attack it in good earnest if the fire was not discontinued. The message had due effect.

A few days after the affair with the "Colocolo," the Peruvians had an opportunity of avenging the provocations they had received. The Chilian admiral sent an officer, with seven sailors, to our ship to purchase shoes. The garrison having observed the Chilian boat, sent out a shallop with twenty-five men, which came close alongside of us. In spite of our opposition the Chilian officer leaped into his boat and stood off. He was, however, too late; for, just as he was leaving the ship's side, the hostile shallop passed under our bowsprit, and fired a volley into the Chilian boat. Five sailors fell into the sea, either killed or wounded. Of three men picked up, one was the officer, who had received two wounds from musket balls. We saved one of the wounded sailors by throwing him a rope, by which we pulled him up, covering him with the French flag.

The Peruvians had no longer a fleet strong enough to keep at sea; but soon after their government purchased the "Edmond," and some other merchantmen, and fitted them up as privateers The command was given to M. Blanchet, who had been first pilot of the "Edmond" during our voyage from Europe. After he had taken the "Arequipena," an old Chilian ship of war, and burnt several transports, he attacked three Chilian corvettes the harbor of Casma. They had already struck their fla

when Blanchet was shot while boarding one of them. His loss damped the courage of the Corsairs, and the contest was soon given up. The shock of Blanchet's death had such an effect on the crew of the "Edmond," that they all went down between decks in great grief, except the cook, who fired a gun he had charged to the brim, and killed some men who were on a bowsprit of one of the hostile vessels. He then sprang to the helm, and steered the ship safely into one of the inlets of the bay.

The lover of natural history finds in the bay of Callao numerous opportunities for gratifying his curiosity. The mammalia are not very numerous. Sea otters and sea dogs are found there, as on all parts of the South American coast. Two species (the *Otaria aurita*, Humb., and the *O. Ulloæ*, Tsch.) inhabit the southern declivity of the Fronton. I went to hunt seals on the rock with the officers of a French ship of war. When we landed, which was difficult on account of the breakers, we fired at the animals and killed a number of them. A sailor waded through the breakers and bound the dead seals with a rope, by which he drew them on board. As we shot a great number of birds, the Chilian admiral, on hearing the firing, thought that one of his ships must be engaged with the Peruvian Corsairs; and, therefore, sent out the "San Lorenzo" brig of war to see what was going on.

The bay abounds in fine water-fowl. Amongst the most remarkable is Humboldt's penguin (*Spheniscus Humboldti*, Mey.). A few are smaller than the common grey penguin, and one is somewhat different in color on the back and breast. The Peruvians call it *Paxaro niño* (the child bird). It is easily tamed, becomes very social, and follows its master like a dog. It is amusing to see it waddling along with its plump body and short legs, and keeping itself in equilibrium by moving its floating wings. I had one completely tame, which I bought from an Indian. It was named *Pepe*, and it answered readily to the name. When I was at my meals he regularly placed himself beside my chair, and at night he slept under my bed. When he wished to bathe he went into the kitchen and beat with his bill on an earthen pan until somebody threw water over him, or brought him a vessel full of water for a bath.

I brought away a few of the marine birds which appeared the most remarkable. Among them was the banded cormorant (*Carbo Gaimardi*, Less.). On the back it is grey, marbled by white spots; the belly is fine ash-grey, and on each side of the throat there runs a broad white stripe or band. The bill is yellow and the feet are red. The iris is peculiar; I never saw its like in any other bird. It changes throughout the whole circle in regular square spots, white and sea-green. Thousands of the spotted gannet (*Sula variegata*, Tsch.) inhabit the rocks of the island of San Lorenzo. This bird is the greatest producer of guano. The inca tern (*Sterna luca*, Less.) is without doubt the finest of the whole tern family. The color of the head is brown-grey; getting darker towards the tail, and brighter on the lower body. From the root of the bill on either side there shoot out some white feathers slightly curving, so that they give the appearance of white moustachios. Among the land birds are some very fine colibri (*Trochilus Amazilia*, and *Tr. Cora*, Less.). The horse-protector (*Crotophaga sulcata*, Swains.) is a singular animal. It is about the size of a starling, with a short, compressed and curved bill, having several deep furrows along its sides. The tail is long and fan-shaped. The whole body is of a deep blue color, with a slight metallic brightness. The bird is very social with cattle of all kinds, and more particularly with horses. It is fond of perching on the back of a horse or an ass, and searching for insects which it finds there in abundance. These animals are very sensible of the service thus rendered to them, and by the manner in which they move about when the bird is perched on their heads or necks, show how much they are gratified by its presence.

Foreigners, when they visit the coast of Peru for the first time, are much surprised at the immense number of birds of the vulture species which they meet with about the roads and on the roofs of the houses. In Callao and in all other ports the Turkey vulture (*Cathartes aura*, Illig.) is frequently seen. It is called by the Spaniards *Gallinazo á cabéza colorada* (red-headed vulture). Further in the interior of the country it is frequently seen, though there it is less common than the black gallinazo (*Cathartes fœtens*, Illig.). The color of the former is dark

brownish-black; the unplumed head and throat are red; the throat is full of wrinkles and warts. The latter is very like it in size and color, only the head and neck are greyish black. These birds are the size of a turkey-cock; but they are lanker and more angular in form. The black-headed gallinazo is inactive, heavy, and seldom flies far. When seeking food he hops about on the ground in short, regular springs. When he wishes to move faster forwards he helps himself with his wings, but without flying. Its cry is seldom heard and never long continued. At noon, sometimes from sixty to eighty of these birds perch themselves on the tops of the houses or on the adjoining walls, and with the heads under the wing they all go to roost. They are extremely voracious, and devour every sort of animal substance they can find, however filthy it may be. They are not in the least degree shy, for they hop about among men and cattle in the most populous places. The Turkey vulture is far more lively, and its movements are more light. It flies faster, and continues longer on the wing than the black-headed gallinazo. It is, however, more timid. It nestles in sandy rocks and uninhabited islands. The female lays three or four whitish eggs, which are hatched in February and March. The common gallinazo usually builds its nest on the tops of houses, churches, ruins, and high walls. The female lays three or four eggs, which are whitish brown and speckled, and are hatched in the same months as the eggs of the Turkey vulture.

Among the amphibia in Callao, the iguana and land agama are numerous. Snakes abound in the low bushes at the mouth of the Rimac, and some kinds, which are venomous, live on the arid sand-banks. All the sea tortoises have been driven out of the bay, and now inhabit the detached creeks of the uninhabited parts of the coast.

The kinds of fish are numerous.—Sharks, rays, ballancers, corvinas, bonitos, &c., are caught in abundance. Most of the corvinas and bonitos are carried to market. The flesh of the latter is firm, dry, and less savory than the corvina. The *Pexe-rey* (king-fish) is superior in flavor to the *Pexe-sapo* (toad-fish), which is a little larger, and has a thick, fleshy head. These

fish are taken on rocks and under water, where they are struck by a kind of harpoon hooks and drawn out.

When, on board the "Edmond," I first saw the towers of Lima gilded by the beams of the setting sun, and the chains of hills behind, rising by gradations, until in the farthest background they blended with the cloud-capped Cordilleras, I felt an inexpressible desire to advance towards those regions, that I might breathe the air of the Andes, and there behold nature under her wildest aspect. But these wishes were vain, and I was compelled to turn again to the desolate ocean; for it was understood that our further voyage must be towards the north, and from there that we should proceed to the coast of Asia. I did not then foresee that my longing might be fulfilled, and that so much of enjoyment, together with so much toil and danger, awaited me in the mountainous regions of Peru.

Notwithstanding the insecurity of the road to Lima I resolved to proceed thither. Carriages and horses were not to be procured in Callao, for the latter were all either seized for the service of the government or concealed. I could therefore travel only on foot. Don Manuel de la Guarda, the commander of the fortress, observed, whilst giving me a passport, that he would advise me to use speed, and to get as soon as possible out of the range of the guns, for he expected every moment to be obliged to order the firing to commence. I did not neglect to follow his advice. However I had not got more than a hundred paces from the castle when the artillery began to play, and balls fell around on every side. I quickened my pace, and soon got near some fences, where men were firing with muskets. There I was seized by some Chilian cuirassiers, who sent me forward from post to post, until at last in one of the posts I met with an officer with whom I had been acquainted in Chile. When I was dining one day on board the corvette Confederacion in the bay of Valparaiso, the young officer whom I have just alluded to sat next me. The conversation happening to turn on phrenology, he insisted on my examining his head, and pronouncing a phrenological diagnosis on it. Though I assured him that I attached no value on this alleged science, he continued to urge me to make the examination. After feeling his head I observed to him, with great gravity:

"Here is the organ of mathematics pretty well developed, and it is probable that you may distinguish yourself in that branch of knowledge." The fact was, I had observed from his uniform that he belonged to the artillery, and since I was obliged to say something, I thought it would be best to make my remarks refer to his profession. Don Antonio had not forgotten it, for as soon as he saw me at the outpost, he ran up to me quite overjoyed, and told me that I had judged rightly of his talent, for the guns which he commanded always sent their balls direct into the fortress, and did more execution than any other. By following my advice and cultivating his mathematical organ, he assured me, he was enabled to direct a gun better than any other officer, and his aim could always be relied on. He immediately procured me a pass, by which I was conducted all the remainder of my journey.

The distance from Callao to Lima is two Spanish leagues. The road is covered with deep sand, and on either side are uncultivated fields and low brushwood. After leaving Callao I came to Bella Vista, then to the ruins of an old Indian village, and farther on inland reached some plantations. Halfway between Callao and Lima is the convent of *la Virgen del Carmen*, and also a chapel. The convent is now abandoned, but in front of the chapel there constantly stands a monk, who begs for alms. Close to the convent there is a Tambo,* in which brandy, lemonade, and bananas are sold. This place, which is called La Legna, is a Spanish league from both towns. The hired horses are so used to put up at this place, that it is only with great trouble they can be got to pass it.

Though much wearied by my journey on foot, I tried in vain to obtain some refreshment here. Unluckily the Tambero, a Zambo, had decamped, as his house had often been plundered.

In the most oppressive heat I wandered over the shadeless plain, and at last reached the fine road called the *Alameda del Callao*, which extends from the Callao Gate of Lima to nearly half a league beyond the city. Don Ambrosio O'Higgins, an

* *Tambo* is an Indian word, signifying an *Inn*. *Tambero* means *Innkeeper*. ...

Irishman by birth, first a small shopkeeper in Lima, then a soldier in Chile, and finally viceroy of Peru, with the title of *Marques de Osorno*, built the fine Callao Gate and laid out the Alameda. On the 6th of January, 1800, it was solemnly opened. The whole undertaking cost 340,964 dollars. Resting-places are made in the Alameda at regular distances; and there are on each side charming gardens, with luxuriant fruit-trees. Happy in having reached the end of my wearisome journey, I quickly passed through the Callao Gate, and entered the City of the Kings.

CHAPTER IV.

Lima—Situation and extent of the City—Streets, Houses, Churches and Convents—San Pedro—The Jesuits—Nunneries—Beataries—Hospitals—San Andres—The Foundling House—The Pantheon—The Palace—The Plaza Mayor—Pizarro—The Cabildo—Fountains—Palace of the Inquisition—The University—National Library—Museum of Natural History and Antiquities—Academy of Design—The Mint—The Theatre—Circus for Cock-fighting—The Bridge—The City Wall—Santa Catalina—Barracks.

LIMA is built on both banks of the river Rimac, which divides the town into two unequal parts.* The larger part (the town, properly so called) is situated on the southern bank of the river; the smaller part, consisting of the suburb San Lazaro, or the fifth section, is on the northern bank. The greatest extent of Lima is from east to west; from the Gate of Maravillas to the Monserrate. Between those two points the distance is 4471 varas,† or two-thirds of a Legua, or Spanish league; and the greatest breadth of the city, that is to say, from the Bridge (the suburb of San Lazaro not included) to the Gate of Guadalupe, is 2515 varas, or two-fifths of a Legua. The utmost circumference of Lima is about ten English miles. The plain on which the city is built, takes rather a decided slope from east to west.

The streets of Lima intersect each other in right lines, and consequently groups of houses form quadrangles: these are called *manzanas*. Each side of one of these manzanas measures on the average from 140 to 145 varas; and it may therefore be computed that, collectively, they occupy a superficies of from 148,-

* The city of Lima was founded by Don Francisco Pizarro on the 6th of January, 1534. As it was the day of the Epiphany, Lima received the title of *Ciudad de los Reyes* (City of the Kings). Historical records vary respecting the day and the year of the foundation of Lima; but I have *reason to believe* that the date I have mentioned above is perfectly correct.

† *The Vara Castellana* is equal to 33 inches English measure.

000 to 160,000. There are in all 211 manzanas, of which those situated on the Periphery are the smallest and most irregularly constructed. Lima is divided into five sections, which are again subdivided into ten districts and forty-six *Barrios*. It contains about 3380 houses, 56 churches and convents (the latter occupying at least one-fourth of the superficies of the city), 34 squares or open areas in front of the churches, and 419 streets. On the average the streets are about 34 feet wide and 386 feet long. Most of them are very badly paved, but they have lateral footpaths. According to the original plan for building Lima, it was intended that all the streets should run in one direction, viz., from southeast to northwest, so that the walls of the houses might afford shade both morning and afternoon. Between the Plaza Mayor and Santa Clara this plan has been pretty uniformly carried out; but in other parts it has been less rigidly observed. At noon there can be no shade, as the city is situated in 12° of south latitude.

The impression produced at first sight of Lima is by no means favorable, for the Periphery, the quarter which a stranger first enters, contains none but old, dilapidated, and dirty houses; but on approaching the vicinity of the principal square, the place improves so greatly that the miserable appearance it presents at first sight is easily forgotten.

Most of the houses in Lima are only one story high, and some have only the ground-floor. The larger class of houses correspond one with another in the style of building. In front they have two doors: one is called the *Azaguan*, and is the principal entrance to the house; and next to it is the door of the *Cochera* (coach-house). Either above the cochera door, or on one side of the house door, there is frequently a little chamber, having a window closed by a wooden railing. At this little railed window the ladies are accustomed to sit and watch the passers-by—nor are they very much displeased when some of the latter occasionally make free to *reguardar la reja* (to look at the railing). The azaguan opens into a spacious court-yard called the *Patio*, on either side of which there are little rooms. Directly facing the azaguan, is the dwelling-house, round which there usually runs a balcony. Two large folding-doors lead into the Hall (*Sala*),

in which the furniture consists of a sofa, a hammock, and a row of chairs: the floor is covered with straw matting. From the sala a glazed door opens into a smaller apartment, called the *Cuadro*, which is elegantly, often splendidly furnished, and the floor is carpeted. This is the room into which visitors are shown. Adjoining the cuadro are the sleeping-rooms, the dining-room, the nursery, &c. These apartments communicate with a second court-yard, called the *Traspatio*, the walls of which are often adorned with fresco paintings. This *Traspatio*, a portion of which is usually laid out as a little garden, communicates with the kitchen and the stable (*corral*). A small avenue, called the *callejon*, forms a communication from the first to the second Patio, and is used as a passage for the horses. When there is no *callejon*, as is often the case in the poorer class of houses, the horses are led through the sala and the cuadro. In the upper story the arrangement of the rooms differs from that of the ground-floor. Above the azaguan is the cuadro, opening into a balcony, which is attached to most of the houses in Lima. The sala in the upper story forms an ante-room to the cuadro; and the rest of the apartments are built above the ranges of ground-floor rooms on either side of the patio. Above the sala and cuadro of the ground-floor, there are no upper rooms. The roofs of those two apartments form a kind of large terrace called the *Azotea*, which is paved with freestone, and surrounded by a railing. This *azotea* serves as a play-ground for the children of the family; it is ornamented with flower-pots, and covered with an awning to shade it from the sun. The upper story has a flat roof, composed of bamboos and mats, overspread with mortar or light tiles. In the houses of Lima, as in those of Callao, the windows of some of the rooms are made in the roofs. The other windows, of which there are but few, are on each side of the house door; they are tastefully ornamented, and often have richly gilt lattices.

The style of house-building here described must of course be taken merely as a general example; that there are numerous deviations from it may naturally be supposed. In the large houses the walls are of brick, faced with ornamental tiles (*adobes*). In the smaller houses, the walls consist of double rows of bamboos, covered with plaster, and afterwards painted white or yel-

low. The fronts of the houses are usually quite plain, but here and there may be seen a house with a finely ornamented façade. The house of Torre Tagle, near San Pedro, and some others, are remarkable for the beauty of their ornaments, which attract the notice of all strangers visiting Lima.

Owing to the heat of the climate, the doors and windows are almost always kept open, so that the houses have not the privacy and comfort of European dwellings.

Of the numerous churches and convents in Lima, some are deserving of particular mention. The cathedral occupies the whole eastern side of the Plaza Mayor. The foundation stone of this edifice was laid on the 18th of January, 1534, by Don Francisco Pizarro, who named it the Church of *Nuestra Señora de la Asuncion*. Ninety years elapsed before the building was completed, and on the 19th of October, 1625, it was consecrated by the Archbishop, Don Gonzalo de Ocampo. Such was the pomp observed at this ceremony, that, though mass commenced at six in the morning, it was five o'clock in the afternoon before the host was raised.

The interior of the cathedral is exceedingly beautiful. The grand altar is ornamented with seven Ionic columns of silver, twelve feet high, and one and a half thick, and is surmounted by a massive silver gilt crown. The tabernacle is seven feet and a half high, and composed of exquisitely wrought gold, set with a profusion of diamonds and emeralds. On each side of the altar there are massive silver candelabra, each weighing four and a half arobas (71$\frac{2}{4}$ pounds). On high festival days, the gorgeous splendor of the cathedral of Lima probably exceeds that of the principal churches in Rome. The robes and ornaments worn by the priests correspond with the magnificence of the altar; they are embroidered in gold, and set with precious stones. The cathedral service is performed by the canons (Canonigos).

Among the Churches of Lima, San Lazaro is distinguished for its tasteful exterior, and the chaste simplicity of its internal decoration. The bodies of persons unknown, found dead in the streets, are conveyed to the door of the church of San Lazaro, and there exposed for the space of twenty-four hours.

The convent of San Francisco, the largest of the monastic es-

tablishments in Lima, is an immense building, situated in the vicinity of the Plaza Mayor. In this convent mass is read daily every half-hour, from five in the morning till noon. A small chapel within the convent is called the *Capilla de los Milagros*, and a superstitious tradition records that during the great earthquake of 1630, the image of the Madonna, which surmounts the chapel door, turned towards the grand altar, and with folded hands invoked the divine grace in favor of the city. By this intercession it is believed that Lima was saved from total destruction. The monk who conducted me over the convent, and who related to me this miracle, observed with much simplicity that it was singular that the Madonna did not repeat her gracious intercession in the year 1746.

The carved work which adorns the ceilings in the corridors is admirably executed, though not very beautiful in design. The cells of the monks are very simple, but perfectly comfortable for habitation. The spacious and well-arranged gardens within the area of the convent form a pleasing contrast to the gloomy appearance of the external walls.

To the Franciscan monks also belongs the convent of *Los Descalzos*, situated in the suburb of San Lazaro. A broad avenue planted with six rows of trees leads to Los Descalzos. It is a neat but not large edifice, and stands at the foot of a sterile hill. The extensive garden which surrounds it, and which is in a very neglected condition, contains three palm-trees, the only ones to be seen in the near vicinity of Lima. The situation of the convent is not healthy, and in consequence the monks frequently suffer from intermittent fever. These monks go barefooted, and live entirely on alms. Every morning two lay brethren ride on asses to the city, where they visit the market-place, and obtain from the different saleswomen charitable donations of fish, vegetables, or meat.

Another convent is the *Recoleta de San Diego*. During Lent, and especially in Passion Week, many men retire to this place to prepare themselves by mortification and prayer for confession and participation in the Holy Sacrament.

The convent of Santo Domingo is very rich. It enjoys a yearly revenue of from seventy to seventy-five thousand dollars, for the

most part accruing from the ground-rents of houses in the city. The steeple of Santo Domingo is the loftiest in all Lima. It is 188 feet high, and is visible at the distance of three leagues. It is built of wood, and inclines so considerably in its upper part, that there is little probability of its surviving another earthquake like that of 1746. The interior of the church is splendid. The grand altar almost vies with that of the cathedral.

San Pedro must, doubtless, at a former period, have been the principal convent in Lima. It belonged to the Jesuits, and was their *Colegio maximo*. This establishment possessed enormous revenues, for all the finest plantations and best houses in Lima were the property of the order. In 1773, the king of Spain, instigated by the celebrated Bull of the 21st of June of that year (Dominus ac redemptor noster), dispatched an order to the viceroys of the provinces of South America, directing them to arrest the Jesuits all in one night, to ship them off to Spain, and to confiscate their wealth. Of course the utmost secresy was observed, and it is a well-authenticated fact, that in Peru, with the exception of the viceroy, and those of his agents whose assistance was indispensable, no one knew anything of the affair. But the same ship which conveyed the king's commands to the viceroy, had on board the necessary instructions to the vicar-general in Lima, from the superior of the Jesuits in Madrid, who was fully acquainted with the king's design. The preparatory arrangements were made under the seal of perfect secresy, and at ten o'clock at night the viceroy assembled his council, and communicated to them the royal commands. It was determined that no one should be permitted to leave the council-chamber until the blow was struck. At midnight some confidential officers, with the requisite assistance, were despatched to arrest the Jesuits, an accurate list of whose names lay on the table before the viceroy. The patrols knocked at the gate of San Pedro, which was immediately opened. The commanding officer desired to see the vicar-general, and the porter ushered him into the great hall of the convent, where all the members of the order were assembled, evidently expecting his visit. The holy brethren were prepared for immediate departure, each being provided with a bag or trunk containing such articles as were requisite on a sea voyage. Similar

preparations had been made in all the other convents belonging to the Jesuits. The surprise and disappointment of the viceroy on receiving this information may be easier conceived than described. Without delay he ordered the whole brotherhood to be conducted under a strong escort to Callao, where they embarked. In the course of a few days inventories were made of the effects in the convents. At San Pedro it was expected that vast treasures in specie would be found; but how great was the dismay, when, instead of the millions which it was well known the order possessed, only a few thousand dollars could be collected. All the keys, even that of the treasury, were politely laid out in the chamber of the superior. This was a cruel mockery! The Jesuits could not have taken a more ample revenge on the treachery that had been practised on them.

It was suspected that the treasures were concealed partly in the convent of San Pedro, and partly in the plantations. According to the evidence of an old negro, at that time in the service of the convent, he, together with some of his comrades, was employed during several nights in carrying heavy bags of money into the vaults of the convent. Their eyes were bandaged, and they were conducted by two of the brethren, who helped them to raise and set down the bags. The negro, moreover, declared his conviction that there was a subterraneous spring near the spot where the treasure was deposited. The searches hitherto made have been very superficial, and it seems not impossible that by dint of more active exertions this concealed wealth may yet be brought to light.

At present San Pedro is occupied by about a dozen lay priests. They perform the spiritual service of the *Oratorio de San Felipe Neri*. They live on the revenues derived from the rents of the few plantations which have not been confiscated or sold. The chapel is prettily fitted up in the interior, and the midnight mass at Christmas is performed there with great solemnity. The external walls of both the chapel and the convent are painted a reddish-brown color, which has a very sombre and ugly effect.

The convents of *Nuestra Señora de la Marced* and *San Agustin* are situated at the back of San Pedro. The former is spacious, but not largely endowed; the latter is a poor-looking

edifice, but it possesses rich revenues. To San Agustin is attached the once eminent but now very inferior college of San Ildefonso.

Besides the monastic establishments above named, Lima contains several smaller convents for friars, and sixteen nunneries. Of the latter the largest is the Monasterio de la Concepcion. It is very rich, and has an annual revenue of upwards of 100,000 dollars; in other respects it is remarkable for nothing except the not very pious habits of its inmates. *Santa Clara* and the *Encarnacion* are also large establishments, and well endowed. The nuns who observe the most rigorous conventual rules are the *Capuchinas de Jesus Maria*, the *Nazarenas* and the *Trinitarias descalzas*. For extremely pious women, who wish to lead a cloistered life without taking the veil, there are three establishments called *Beaterios*, which may be entered and quitted at pleasure:* these are the *Beaterio de Patrocinio*, the *Beaterio de Santa Rosa de Viterbo*, and the *Beaterio de Copacabana*. This last was originally established exclusively for Indian females. The *Refugio de San Jose* is a place for the reception of married women who wish to withdraw from the ill treatment of bad husbands. On the other hand husbands who are of opinion that their wives may be improved by a little temporary seclusion and quiet meditation, can, with the permission of the archbishop, send them for a while to the *Refugio*. The *Recojidas* is another institution of the same kind, but destined for females of the poorer class.

Lima possesses a great many hospitals, but all are lamentably defective in internal arrangement, and above all in judicious medical attendance. The largest of the hospitals, San Andres, was founded in the year 1552 by the Licentiate Francisco de Molina. Three years afterwards, the Viceroy Don Andres Hurtado de Mendoza, first Marquis de Cañete, placed it under the direction of the Government. Down to the year 1826 this hospital was exclusively destined for the reception of sick Spaniards. San Andres contains five large and four smaller wards, with 387 beds. One part of the establishment is set apart for incurable

* The females who retire to these establishments are called *Beatas* (Bigots). The term *Beaterio* signifies a house for Bigots.—T.

patients. The annual outlay of the hospital amounts to between 45,000 and 50,000 dollars. In the hospital of San Andres insane patients are received, and their number is always considerable. On the 30th of November (St. Andrew's Day) this hospital is opened for the admittance of the public, and one of the favorite amusements of the inhabitants of Lima is to go to San Andres to see the lunatics. It is melancholy to observe these unfortunate beings, thus made the objects of public exhibition, and irritated by the idle throng who go to stare at them. The collection of alms from the numerous visitors is, doubtless, the motive for keeping up this custom, which, nevertheless, is exceedingly reprehensible.

The hospital *Santa Ana* was founded in the year 1549, by Don Fray Geronimo de Loyza, first Archbishop of Lima, and was destined for Indians of both sexes. The benevolent founder, with the most earnest self-devotion, attended the patients, and with true Christian charity performed the humblest duties of a sick-nurse. He died in 1575 in the hospital, to which he bequeathed a yearly revenue of 16,000 dollars. The building contains five large wards, and 336 beds. Since the declaration of independence no Indian has been received into it. This hospital, alternately with those of San Andres and San Bartolome, was used as a military lazaretto; but since 1841 it has been allotted exclusively to female patients of all classes; for it was found necessary to abandon the former female hospital of *La Caridad*, on account of its damp situation.

San Bartolome was an hospital founded in the year 1661, for negro patients; but it has lately been closed. It contains eleven wards and 217 beds.

Under the name of Santo Toribio an hospital for incurable patients was established in the year 1669, by Don Domingo Cueto.

In 1702 it was consigned to the superintendence of an order of monks, called the padres Belemitas, and in 1822 it was incorporated with the hospital of San Lazaro. The latter establishment was founded by Anton Sanchez, in the year 1563, and was exclusively destined for leprous patients. Persons afflicted with cutaneous diseases, and especially maladies of a contagious nature, are sent thither.

In the convent of San Pedro there is a small hospital for poor priests. Attached to it is a dispensary, from whence the poor were supplied gratuitously with medicines, at the time when the convent was in the possession of the Jesuits.

Lima also possesses a Foundling Hospital. Luis Ojeda, who humbly took to himself the title of *Luis el Pecador* (Luis the Sinner), bequeathed all his fortune to the foundation of this establishment, which received the name of "Collegio de Santa Cruz de los niños expositos."*

The refuge for female penitents was founded in the year 1670 by the viceroy, Count de Lemos. The funds were derived from a legacy bequeathed for that object by Don Francisco Arcain in 1572. The establishment has but few inmates.

In former times it was the custom in Lima to bury the dead in graves dug within the churches; but the heat of the climate, and the difficulty of making the graves sufficiently deep, rendering this practice exceedingly objectionable, the viceroy, Don Jose Fernando Abascal, determined on making a burial place beyond the boundaries of the city. A piece of ground was allotted for the purpose, and it was consecrated on the 1st of January, 1808. It is called the *Cementerio gèneral* or *Panteon*, and is situated eastward of the city on the high road leading to the Sierra de Tarma. It consists of two gardens, very prettily planted, and inclosed by high walls. Along the walls, on the inner side, there are niches, about a thousand in number, ranged in sixteen different classes, and they may be purchased by those who wish to possess them. Many of them belong to families and convents. The graves are watched and kept in order by criminals who are condemned to this duty as a punishment. It is calculated that it will be five years before this cemetery is filled. When room is wanting, the niches which have been first occupied will be cleared, and the bones deposited in a bone-house, of simple but appropriate construction. At the entrance of the Panteon there is a neat little chapel, where the funeral obsequies are performed. Burials are permitted to take place only in the morning; and

* According to some accounts this establishment was instituted in 1654, by Mateo Pastor de Velasco, a native of Portollano in Spain.

when a funeral retinue arrives too late, the body remains unin-terred until the following morning. The rich are buried in cof-fins, the poor merely in winding sheets, which are made after the pattern of the habits worn by the bare-footed friars of the order of San Francisco.

The grand square of Lima, the *Plaza Mayor*, though not in the centre of the city, is nevertheless the central point of its life and business. It is 426 feet distant from the Rimac, and pre-sents a regular quadrangle, each side of which is 510 feet long. From each of the four corners two handsome straight streets run at right angles. There is no pavement, but the ground is covered with fine sand. The cathedral and the archbishop's palace oc-cupy the eastern side of the square. The latter adjoins the sanctuary, and has rather a fine façade. The windows of the principal apartments open into a balcony, commanding a view of the Plaza.

On the north side of the square stands the government palace, formerly the residence of the all-powerful viceroys. Its exterior aspect is mean. It is a square building, and the front next the Plaza is disfigured by a long range of shabby little shops (called *La rivera*), in which drugs are sold.* These shops are sur-mounted by a balcony. A large double door opens from the Plaza into the great court-yard of the palace. Along the western side of the building there are also a number of little shops occu-pied by saddlers and dealers in old iron. The street, running in this direction, is called the Old Iron Street (Calle del Fierro Viego). The principal entrance to the palace is on this side. On the south the building has no entrance, and it presents the gloomy aspect of a jail. On the east a door opens into a small yard or court, within which are the office and prison of the police. A few long flag-staffs, fixed on the roof of the palace, do not add to the beauty of the edifice. The interior of the building cor-responds with its outward appearance, being at once tasteless and mean. The largest apartment formerly bore the name of the

* In these shops any one may purchase for a trifle one of the most deadly poisons (Strichnos Ignatia, L.). It is made up into what are called *Pepi-tas de Cabalonga*. It is used in Lima for poisoning dogs.

Sala de los Vireyes. It is now used as a ball room when entertainments are given by the government. Under the Spanish domination this room was hung round with portraits of the viceroys, the size of life.* The series of vice-regal portraits from Pizarro to Pezuela, forty-four in number, completely filled the apartment at the time when the patriot army in Lima revolted, and consequently the last viceroy, Don Jose de la Serna, who owed his elevation to the military revolution, could not have a place assigned for his portrait among those of his predecessors.† The other apartments of the palace are small and inelegant. Some of the rooms are used as government offices.

The present palace was, as far as I have been able to ascertain, built about the beginning of the seventeenth century. In the great earthquake of 1687 it was almost totally destroyed, but it was subsequently restored. The palace which Don Francisco Pizarro built for his own residence, stood, not on the site of the existing edifice, but on the southern side of the Plaza, on the spot where now a narrow dirty alley, called the *Callejon de petateros*, forms a communication between the Plaza and the Silversmith's-street (*Calle de Plateros*). It was in that old palace that Juan de Herada, the friend and partisan of Don Diego de Alma-

* This highly valuable and interesting collection of portraits is now removed from the palace to the museum. It is curious to mark the progressive changes of costume, and to observe the various physiognomies, especially if we reflect on the history of the men whose traits denote such striking differences of character. Almost all these portraits are distinguished by an air of tranquil gravity which in some is combined with true kingly dignity, and in others with an expression of fierceness. The handsomest head of the whole series is decidedly that of Francisco Pizarro. His features bear the stamp of manly energy, and his whole countenance is characterized by courage and candor. The nose has the prominent Arabic form, and the forehead is high and expanded. The thick beard, covering the mouth and chin, gives a gloomy and resolute character to the face. In this series of portraits there is one representing a priest with the vice-regal insignia.

† By a singular coincidence, the title of Conde de los Andes (Count of the Andes) was conferred on La Serna by King Ferdinand at Madrid on the 9th of December, 1824, being the very day on which he gained the battle of Ayacucho, the results of which gave the Spanish dominion in South America its death-blow.

gra, carried into effect his plot against Pizarro. On the 26th of June, 1546, the viceroy was seated at table with a party of his friends, when the insurgents surrounded the palace, shouting "Death to the tyrants!" Pizarro, though warned of his danger, had scarcely time to seize his sword. One of his principal officers, Don Francisco de Chavez, was killed at the door of the apartment, and several of the viceroy's friends and servants escaped by the windows. Among others who attempted to save themselves in this way was Pizarro's counsellor, Juan de Velasquez. Only on the previous evening this man had been heard to declare that no one would be found bold enough to join in an insurrection as long as he held in his hand his staff of authority. This declaration was in a certain measure verified, for Velasquez, whilst descending from the window, held his staff between his teeth, that he might be the better able to support himself with his hands. Martin Pizarro, together with two noblemen and two pages, were the only persons who remained faithful to the viceroy. The latter, with the bravery of a lion, made a long stand against his assailants. "Courage, brother! Down with the traitors!" exclaimed Martin Pizarro, who, the next moment, lay dead at the viceroy's feet. At length Pizarro, exhausted by his efforts to defend himself, could no longer wield his hitherto victorious sword: he was overpowered, and one of his assailants having stabbed him in the throat, he fell, mortally wounded. With his last faltering accents he implored the aid of a confessor; and after losing the power of utterance he traced with his finger, on the ground, the sign of the cross, kissed it repeatedly, and breathed his last. Such was the sad end of one of the greatest heroes of his age;* a man guilty of many crimes, but also unjustly accused of many of which he was innocent. His acts were consistent with the spirit of his age, and were influenced by the frightful circumstances in which he was placed. In short, there can be little doubt that Pizarro was "better than his fame."

The west side of the Plaza Mayor is occupied by the *Cabildo*,

* The above particulars are collected from the *Historia del descubrimiento y conquista de la Provincia del Peru*, by Augustin de Zarate.

or senate-house (formerly called the *Casa Consistorial*), together with the city jail, and a row of houses of no very handsome appearance. The south side is filled by a range of private dwelling-houses, with balconies looking to the Plaza. The houses, both on the west and south sides of the square, are built above a colonnade, in which there are numerous shops.

In the middle of the Plaza is a magnificent bronze fountain with three basins. From the middle basin rises a pillar, surmounted by a figure of Fame spouting the water from her trumpet. In the other two basins the water is ejected from the mouths of four lions. The pillar and figures for this triple fountain were cast in the year 1650, by the able artist Antonio Rivas, by order of the then reigning viceroy, Count de Salvatierra. Besides this principal fountain, there are several smaller ones, from which the public are permitted to supply themselves with water.

The second large public square in Lima is the *Plaza de la Inquisicion*, which, since the war of independence, has received the name of the Square of Independence (*Plazuela de la Independencia*). It is of trapezi-form, widening in the eastern part, and is certainly no ornament to the town, for it is always in a very dirty condition. Being the public market-place, it presents a very busy aspect during the fore part of the day. Two buildings on this Plazuela attract attention, viz.—the Palace of the Inquisition and the University. There are now but few remaining traces of the internal arrangements of the fearful tribunal; for, on the suppression of the Inquisition by the Cortes, the enraged populace forced their way into the building, where they gutted the rooms, and destroyed the furniture. Lima was the seat of spiritual jurisdiction for the whole western coast of South America; and the rigor of its despotism was not far short of that of the Inquisition of Madrid. Every year vast numbers of persons convicted or suspected of crimes were brought from all the intervening points between Chiloe and Columbia to the Tribunal of the Inquisition, and most of them were doomed to the most dreadful punishments. *Autos da fe* were frequently held in Lima, and cases of other kinds of martyrdom were exceedingly numerous. The lists, which have been only partially preserved, present melancholy results. One part of the Palace of the Inquisition is

now converted into a store-house for provisions, and the other part is used as a prison.

The University of Lima was once the most important seat of education in South America. It owes its origin to a decree of the emperor Charles V., issued at the solicitation of the dominican monk Maestro Fray Tomas de San Martin. The decree was dated the 12th of May, 1551, but it did not reach Lima until two years after that time. A papal bull of Pius V. confirmed the imperial decree, and conferred on the institution the same privileges as those enjoyed by the Spanish university of Salamanca. The Lima university was originally established in the convent of Santo Domingo, but after the lapse of three years it was removed to the building now occupied by San Marcel, and in 1576 it was installed in the site it now occupies. It received the name of *Real y Pontificia Universidad de San Marcos.* In the year 1572 the first lay rector was elected in the person of Gaspar Menendez, a doctor of medicine.

The building is situated on the east side of the *Plaza de la Independencia*, next to the hospital of *la Caridad.* The façade is not handsome, but is remarkable for a style not belonging to the age in which it was erected. The building is entered by a lofty door, opening into a spacious quadrangular court, along the four sides of which there are pillared corridors. On the walls of these corridors the different branches of science are allegorically represented in fresco paintings, and beneath these paintings are inscribed quotations from ancient classic authors. The lecture rooms open into the corridors which run round the court. Facing the entrance door, in the left angle of the court, are great double doors opening into the Aula, which is spacious, and has rather an imposing aspect. In the middle of the wall, on the right-hand side, stands the rector's chair in a sort of niche, surmounted by a canopy. On either side of this chair are ranged the seats of the professors, and the members of faculties. Opposite to the rector's seat, on the left-hand side of the Aula, is an elevated chair occupied by the president, when academic prizes are distributed. Below it is an arm-chair for the candidate. On each side of the president's seat are several rows of benches, for the members of the university and visitors. Over the entrance door there

is a gallery to which the public are admitted, and which, on the occasions when prizes are distributed, is usually occupied by ladies. On the walls of the Aula are hung portraits of celebrated learned men.

The National Library, situated near the convent of San Pedro, was founded by a decree, dated the 28th of August, 1821. The books belonging to the university of San Marcos formed the nucleus of the National Library. To them were added the libraries of several of the monasteries, some sequestrated works, and the collections of a few private individuals. Of these latter, the most considerable was the collection of General San Martin, and a library of 7772 volumes bequeathed, together with a legacy of a thousand dollars, by Don Miguel de la Fuente y Pacheco. In November, 1841, the National Library of Peru contained 26,344 printed volumes, 432 manuscripts, and a small collection of maps and copperplate engravings. It is particularly rich in old works on religious and historical subjects. The books relating to the Conquest, and to the early period of the Spanish dominion, form in themselves a complete historical series. Of modern works there are but few. The pecuniary support of the establishment is very inconsiderable. The government exacts from it the import duty, three per cent., on European books, making an average annual sum of 400 dollars. In addition to this the salaries of the librarians amount annually to 2794 dollars. The library is open to the public every day (Friday and Sunday excepted) from eight in the morning till one in the afternoon, and from four in the afternoon till six in the evening.

In the left wing of the same building is the museum, containing a collection of objects of natural history, antiquities, and other curiosities. This collection was first formed in the year 1826, in some of the spare rooms of the palace of the Inquisition, and was afterwards removed from one place to another, until at length the government allotted to the purpose the two fine apartments in the building above mentioned. As yet the establishment is quite in its infancy. It contains nothing of scientific value, and but for the series of historical portraits already described, it would differ but little from the collections of curiosities frequently formed by amateurs, in which all sorts of heteroge-

geous objects are jumbled together. The museum of Lima bids fair to remain for some time to come on the footing on which it was when I saw it, for the establishment has no funds, save a monthly allowance of thirty-two dollars, and out of that scanty pittance the expense of fitting up the rooms, the glass cases, &c., has yet to be defrayed. The museum is open to the public four days in the week.

Two other apartments in the same building are set aside for the Academy of Design (*Academia de Debujo*). On three evenings every week pupils are admitted to this academy to receive gratuitous instruction in drawing. The number of the pupils amounts to between 80 and 100; but there is convenient room for 200. The collection of models and drawing copies for the use of the students is but indifferent.

The mint is situated in the vicinity of the Plazuela de la Independencia. It was founded in Lima in the year 1565; in 1572 transferred to Potosi, and in 1683 removed back to Lima. For the space of seventy years this establishment was in the hands of private individuals; but in the year 1753 the Spanish government took the management of it, and erected the building in which it is still located. It is a large and handsome structure, but very defective in its internal arrangement. Until the year 1817 the machinery for casting was worked by mules, ninety-two of those animals being employed daily. Subsequently, under the direction of an Englishman, water-power was introduced, by which expense was diminished and time saved. A few years ago a French merchant made an arrangement with the government for the use of a complex machine, which he proposed to bring from Europe. The machine arrived, but by an unlucky fatality it proved perfectly useless. For the space of four years repeated attempts were made to work it, but in vain; it fulfilled none of the required conditions. Its faults are manifold, and it reflects but little credit on the person by whom it was contrived. It has cost no less than 250,000 dollars, and has never been of the least use.

In the mint of Lima there are annually cast from two to two and a half millions of dollars, which yield a profit of from 140,000 to 180,000 dollars, out of which are paid the salaries of

the persons employed. Under the Spanish government these salaries amounted annually to 48,906 dollars; now they make, together with other customary outlays, the sum of 85,105 dollars.

The value of a mark of silver in the mint is 8 dollars 4 reales; that of a mark of gold is 144 dollars 4 reales. The standard worth of the gold is 21 carats; that of the silver 20 grains.

Next to the arena for bull-fights, situated in the Plaza firme del Acho, the theatre is the principal place of public amusement in Lima. The first theatre, erected in the year 1602, was situated near the convent of San Augustin, in the street which still bears the name of "Comedia vieja." It was destroyed in the earthquake of 1630, and rebuilt on the same site. In 1662 it was pulled down to make room for a new street, and afterwards the present building was erected. Its external appearance is very ugly and the interior is not much better. Before the orchestra there are some commodious inclosed seats or stalls. The boxes, which are completely separated one from another by partitions, are narrow but deep: the smaller ones are capable of containing eight persons, and the larger ones twelve. In the centre of the first tier of boxes, and fronting the stage, is the government box, which occupies the space of two of the others. It contains seats for the prefect, the sub-prefect, and the members of the Cabildo. The president's box is likewise on the first tier, and on the left of the stage. Adjoining it there is a small cabinet, closed on the side next the pit by a wooden railing. Into this cabinet the president retires between the acts of the performance. The stage is small, and the scenery very indifferent.

The performances are for the most part wretched, both as regards the merit of the pieces and the talent of the actors. Nothing can be in worse taste than the little farces called saynetes, which, according to Spanish custom, always close the performances, whether the principal piece be a tragedy or a comedy. Common-place intrigues form the subjects of these *saynetes*, and their dialogue consists of vulgar jokes. They are altogether calculated to banish any gratifying impression which might by possibility be produced by the principal piece.

For some years past a company of Italians, settled in Lima, *have given operatic performances* on a small scale. One of

them, Signora Pantanelli, is an excellent singer, and would be heard with pleasure even in Europe. Some other members of the company have middling talents, but the rest are decidedly bad. The operas performed are Giulietta y Romeo, Parisina, Lucia di Lammermuir, Marino Faliero, La Sonnambula, and Il Barbiere di Seviglia: these, together with a mutilated Norma, and a much curtailed Semiramide, form almost the whole repertory. Want of stage room is an obstacle to the representation of operas demanding grand scenery and machinery. The costumes are for the most part exceedingly elegant, though seldom historically correct. The orchestra is defective, and ought to be much improved, to give satisfaction to a public passionately fond of music.

But if the inhabitants of Lima are great lovers of music, dancing has no less powerful attractions for them. Though the time is gone, when the dress of any opera-dancer may be expected to reach below the knee, yet the drapery of a Limanese Terpsichore appears to have attained even an ultra degree of curtailment. The representation of ballets, properly so called, is not attempted; but the Bolero, the Fandango, the Cachucha, and Don Mateo, are favorite and often repeated performances.

During the long intervals between the acts, smoking is permitted in the pit and in the outer court of the theatre. There is also a plentiful supply of very bad and very dear refreshments.

An intolerable annoyance experienced in visiting the theatre at Lima is caused by the swarms of fleas which infest every part of the house, but most especially the boxes. Unfortunately, this nuisance is irremediable, and the visitor must be blessed with a large amount of endurance who can patiently sit out a whole evening's entertainments.

Not far from the theatre is situated the circus for cock-fighting (*Coliseo de gallos*), where fights (*peleas*) take place daily. The Coliseo is a large amphitheatre, with an arena in the middle. The game-cocks trained for this sport have the spur removed from the right foot and in its stead is substituted a small sharp steel blade, curved and shaped like a scythe. One or other of the animals is frequently killed at the first spring; and when that is not the case they continue fighting until they die of wounds and

exhaustion. It is a cruel sport, and a worthy pendant to bull-fighting. The first Coliseo was erected in 1762, by Don Juan Garrial. The present building, in the Plazuela de Santa Catalina, is a very handsome structure, and Lima may fairly boast of possessing the finest circus for cock-fighting in all the world.

In the same square with the *Coliseo de gallos* is the tennis-court, a spacious area, surrounded by high walls. It is not now so much resorted to as formerly, for the Creoles are not so fond of tennis as the Spaniards.

A beautiful stone bridge unites the town with the suburb of San Lazaro. This bridge was built in the years 1638-1640, when the Marquis de Montes Claros was viceroy of Peru. The plan was designed by Fray Geronimo Villegas, an Augustine monk. It is 530 feet long, and has six arches rising thirty-seven feet above the surface of the water. The foundation of the piers is composed of square blocks of stone, the piers themselves are of brick, and the parapet of cemented stone work. The erection of this bridge cost 400,000 dollars. A sufficient proof of its strength and solidity is the fact that it survived the earthquakes of 1687 and 1746, which shattered all other parts of Lima. In the earthquake of 1746 the first arch, on which stood an equestrian statue of Philip V., was destroyed, but it is now restored. It has on one side two towers, with a dial in the middle.

The city of Lima, with the exception of a portion of the north side, and the suburb of San Lazaro, is surrounded by a wall built of brick. This wall was constructed in the year 1585, when the Duque de la Plata was viceroy. It is the work of a Fleming, named Pedro Ramon. This wall is between eighteen and twenty feet high. Its breadth at the base is from ten to twelve feet, and at the top nine feet. It does not therefore afford sufficient space for mounting large guns. Along the whole extent of the wall there are thirty-four bastions. In the year 1807, this wall, which had fallen into a very ruinous condition, was repaired by order of the viceroy Abascal, and put into a condition to be mounted with artillery. On each side commodious pathways were made, and along the inner side powder magazines were constructed. At present these fortifications are in a state of complete dilapidation. The paths, which are obstructed by

rubbish, are almost impassable, and the powder magazines are destroyed. The city wall of Lima has nine gates (*Portadas*). Of these, six only are now open, viz., the Portadas of Maravillas, Barbones, Cocharcas, Guadelupe, Juan Simon, and Callao; the three others, the Portadas of Martinete, Monserrat, and Santa Catalina, are walled up. At every one of the open gates there are stationed custom-house guards, whose chief duty consists in preventing the smuggled introduction of unstamped silver (*plata de piña*). In the direction of the suburb of San Lazaro, the city cannot be closed, as the wall does not extend to that part. Between San Lazaro, and the high road to Cero de Pasco, is the *Portada de Guias;* this, however, is not properly a gate, but a small custom-house. In this direction it is easy to gain entrance to the city from the river, and consequently it is here that most of the contraband silver, brought from the mountains, is smuggled.

Among the fortifications of Lima may be included the pretty little castle of Santa Catalina, situated at the eastern end of the city, between the Portada de Cocharcas and the Portada de Guadelupe, at the distance of about two hundred yards from the city wall. It is surrounded by rather high walls, and is flanked by two bastions. The interior of this citadel is very well arranged, and is kept much cleaner than such places usually are in Peru. It contains stores of arms and barracks for the artillery. The largest barracks in Lima are those of the infantry, *Quartel de Infanteria*, in the Colegio. They are remarkable for want of cleanliness, and like most of the public buildings in this interesting city, going fast to decay.

CHAPTER V.

Population of Lima—Its diminution—Different races of the Inhabitants—Their characteristics—Amusements—Education—The women of Lima—Their Costume—The *Saya y Manto*—Female domestic life—Love of dress—Beatas—Indians—Slaves—Bosales—Free Creoles—Negroes—Negresses—Black Creoles—Their varieties—Mestizos—Mulattoes—Palanganas—Zambos—Chinos—Foreigners in Lima—Corruption of the Spanish language.

Proceeding from the shell to the kernel, we will now take a glance at the inhabitants of the capital of Peru: first, surveying the native in his fatherland, and next, the foreign settler in his adopted country.

The population of Lima has at various periods undergone remarkable fluctuations. In the year 1764 the number of the inhabitants was stated to be 54,000; in 1810, 87,000; in 1826, 70,000; in 1836, 54,600; and in 1842, 53,000. Of most of these estimates I entertain some degree of distrust, as they are merely founded on general calculations, and are not the results of careful numbering. Certain it is, however, that the population of Lima has very considerably decreased since the declaration of independence. This is sufficiently proved by the fact that several parts of the city are now totally uninhabited: the houses falling to decay, and the gardens lying waste.

The cause of this diminished population is easily explained by the physical and political condition of the country. Earthquakes have, at various times, buried thousands of people beneath the ruins of their own dwellings; the war of independence was attended by vast sacrifices of life; banishment and voluntary emigration have removed from Lima the families of some of the principal citizens; and epidemic disease, the natural consequence of defective police regulations, has swept away countless multitudes of the inhabitants. The number of new settlers is very

inconsiderable; and for several past years the number of deaths has nearly doubled that of the births. There appears no reason to doubt that this decrease of population will continue; because, as will presently be seen, the causes to which it is assignable cannot be checked, inasmuch as they are intimately blended with the character of the nation. Most of these causes operate not only in the capital, but over the whole country; indeed, in the latter their influence is in some instances much greater; for example, in the interior of Peru the loss of life attendant on the war was relatively much greater than in Lima. This favored country, which extends from the 3d to the 22d degree of south latitude, and which contained at the time of its conquest by the Spaniards an immense population, though its amount is not known with numerical exactitude, now counts only 1,400,000 inhabitants.

In the tax registers, drawn up during the protectorate of Santa Cruz, in 1836, the number of the inhabitants of Lima is represented as follows:—

	Male.	Female.	Total.
1. White Creoles (being the descendants of foreigners, but chiefly of Spaniards)	9,423	10,170	19,593
2. Indians	2,561	2,731	5,292
3. People of Color (mixed races)	11,771	12,355	24,126
4. Slaves	2,186	3,606	4,792
5. Ecclesiastics (Lay and Monastic)	475	350	825
In all	26,416	29,212	54,628

From the above it appears that in every class (No. 5 excepted) there is a preponderance of females; and that on the whole population of 54,628 individuals there is a surplus of 2796 women. About one in every sixty-six individuals belongs to the priesthood.

Possibly in no other place in the world is there so much variety of complexion and physiognomy as in Lima. From the delicately fair creole daughter of European parents, to the jet black Congo negro, people of every gradation of color are seen living in intimate relation one with another. The two extreme classes —the whites and blacks—are as distinct in character as in color, and of either of those it is no difficult task to give an accurate

portraiture. But it is different with the mixed races. To define their characteristics correctly would be impossible, for their minds partake of the mixture of their blood. As a general rule, it may fairly be said that they unite in themselves all the faults, without any of the virtues, of their progenitors. As men they are greatly inferior to the pure races, and as members of society they are the worst class of citizens. Here, as well as in the following delineations of the different races, I wish my observations to be understood only in a general sense. I have met with some honorable exceptions; though, unfortunately, they were mere solitary luminaries, whose transient light has been speedily obscured by the surrounding darkness.

The white Creoles, who, with very few exceptions, are the descendants of Spaniards, constitute somewhat less than a third part of the population of Lima. They are slender in figure and of middling height. Their features are strongly marked, their complexions fair and pale, and their hair is of the darkest black. The men are feeble and look prematurely old. Their countenances, though not devoid of dignity, have a sort of sensual expression. They are effeminate, and disinclined to any kind of active exertion. If they ride the distance of ten miles, they think they have performed a feat of heroism worthy to be recorded in the state archives. If the white Creoles are inferior to the Spaniards in physical organization, they are no less beneath them in qualities of mind. They shrink from anything that demands intellectual exertion. In short, they are sworn enemies to business of every kind, and those who are obliged to work for their own support, make choice of some occupation which, like that of a shopman, affords them ample time to smoke cigars and to gossip with their neighbors. The richer classes give themselves up wholly to idleness. They walk about and visit their acquaintances, or they lounge in shops or at the corners of streets, and in that manner they often amuse themselves for half a day. Those who are owners of plantations occasionally ride through them to receive reports from their mayordomos. Their afternoons are usually spent in the *Coliseo de gallos*, in the coffee-houses, or at the gaming-table. The white Creoles are as passionately fond of gaming as the Spaniards, and sums equal to those staked at

the gaming-tables of Mexico and the Havannah are daily lost and won in Lima. Though games of hazard are prohibited, yet they are very publicly played, and it is only now and then that the police enforce the regulations of the law by the seizure of a bank.

Gaming in Lima is carried on very quietly, and the most determined gamblers do not show themselves very much excited either by losses or winnings. The discovery of false dice, however, creates bitter feelings of animosity, which not unfrequently lead to assassination. Of this I knew several instances when I was in the interior of the country.

The intellectual culture of the white Creole of Lima is exceedingly defective. He is not wanting in talent; but an imperfect system of education affords him no opportunity for the development of his faculties, and innate indolence is a bar to his self-improvement by study. He seldom rises above the level of every-day life, and is ignorant of everything beyond the boundary of the city, or, at all events, of the province in which he was born. I have often been amazed at the monstrous ignorance of so-called educated Peruvians, respecting the situation, the extent, the physical formation, and the productions of their native country.

On the other hand, it must not be forgotten that Lima has been the birthplace of several white Creoles, whose talents and learning have honorably distinguished them from the rest of their countrymen. For example, Don Tomas de Salazar, author of the "Interpretaciones de los Leyes de Indias."* Don Miguel Nuñez de Rojas, the learned Judge of Confiscations in the Spanish war of succession, and Don Alonzo Conde de San Donas, who in the reign of Philip IV. was Spanish Ambassador at the Court of France. Among those eminent in literature may be named Don Pedro de la Reyna Maldonado, and the poet Don Diego Martinez de Rivera, of whom Cervantes in his "Galatea" says—

> Su divina ingenio ha producido
> En Arequipa eterna Primavera.†

Several monks distinguished for learning have been white

* Interpretations of the Indian Laws.

† His divine genius has produced eternal spring in Arequipa.

Creoles, and an eminent individual of that race was Don Hipolito Unanue, the author of the "Guide to Peru," and "Observations on the Climate of Lima, and its Influence on organized Beings, especially Man;"* a Treatise on the Cocoa-tree, &c. In more recent times, Don Mariano Eduardo de Rivero has zealously devoted himself to the study of natural history and antiquities.

But in spite of his faults, the Lima Creole has his good qualities. He is an enemy to strong drinks. When he takes wine it is usually of some sweet kind, and of that he partakes very sparingly. A white Creole in a state of intoxication would, indeed, be a rare sight. Not so in the interior of the country, where the whites are remarkable for intemperate drinking.

Far superior to the men, both physically and intellectually, are the women of Lima. Nature has lavishly endowed them with many of her choicest gifts. In figure they are usually slender and rather tall, and they are especially remarkable for small, elegantly formed feet. Their fair faces, from which the glowing breath of the tropics banishes every trace of bloom, are animated by large, bright, dark eyes. Their features are pleasing—the nose being well formed, though in general not small—the mouth invariably adorned with two rows of brilliant white teeth,† and their long black hair, arranged in plaits, falls gracefully over the bosom and shoulders. Add to all this a captivating grace of manner and deportment, joined to an exceeding degree of gentleness and amiability, and it will be readily admitted that the Limena is a noble specimen of female loveliness.

At home, especially in the summer season, the ladies of Lima dress lightly and even negligently. For visiting, or going to the theatres, they adopt the French fashion. When walking in the streets, attending church, joining religious processions, &c., they appear in a very singular costume, peculiar to Lima, and consisting of two garments called the *Saya* and the *Manto*. Of the saya there are two kinds. The one called the *Saya ajustada*, was

* "Guia del Peru." "Observaciones sobre el clima de Lima y sus influencias en los seres organizados en especial el hombre."

† The women of Lima clean their teeth several times a day with the root called *Raiz de dientes* (literally *root for the teeth*), of which they keep a piece constantly in their pocket.

formerly in general use, but is now seldom seen. It consists of a petticoat, or skirt of thick stiff silk, plaited at top and bottom, in small fluted folds, drawn very close together at the waist and widening towards the ankles, beneath which the saya does not descend. It is tight to the form, the outline of which it perfectly displays, and its closeness to the limbs naturally impedes rapid movement. When wearing the *Saya ajustada*, the ladies find it no very easy task to kneel down at church, and at the termination of every genuflexion, they are obliged to twist and twirl about for a considerable time before they can again stand on their feet.*

The other description of saya is called the *Saya culeça*, or the *Saya desplegada*. It is plaited close at the waist, and from thence downwards it stands out like a hooped petticoat. This sort of saya is made by first being plaited both at top and bottom like the *Saya ajustada;* but, afterwards, the lower plaits are undone to form the *Saya desplegada*. The saya is always made of some dark-colored silk, black, green, blue, or cinnamon color.

The *Manto* is a veil of thick black silk fastened by a band at the back of the waist, where it joins the *saya*. From thence it is brought over the shoulders and head, and drawn over the face so closely that only a small triangular space, sufficient for one eye to peep through, is left uncovered. A rich shawl thrown over the shoulders conceals the whole of the under garment, except the sleeves. One of the small, neatly-gloved hands, confines the folds of the *manto*, whilst the other holds a richly embroidered pocket-handkerchief.

At first sight this costume has a very singular effect, and it is

* It is related that, during the war of independence, when Lima was alternately in possession of the Patriots and the Spaniards, a party of the latter, in order to ascertain the spirit of the Limeños, disguised themselves as Patriots and marched to the vicinity of the town. On their approach becoming known, a great number of persons proceeded from Callao to the Alameda to meet them. Among those who went forth to welcome the supposed patriots were a number of women dressed in the narrow *sayas* above described. When the disguised Spaniards had advanced within a little distance of the deceived multitude they began to attack them. The men saved themselves by flight; but the women, whose sayas impeded their motion, were unable to escape, and were almost all killed.

long before the eye of a foreigner becomes reconciled to it. The narrow saya is by no means graceful; the wide saya, on the other hand, is very becoming, and sets off to great advantage a good figure and elegant deportment. When I first arrived in Lima and saw the ladies closely muffled up in their *mantos*, and carrying embroidered cambric handkerchiefs and nosegays in their hands, it struck me that the nuns enjoyed greater freedom in that country than in any other part of the world. After vespers, that is to say half-past seven in the evening, the police regulations prohibit any woman from appearing in the streets dressed in the saya.

As this garment may be worn over a dress of the ordinary kind, it is found to be very convenient, inasmuch as it saves the trouble of a careful toilette. During short visits the ladies do not take off the saya; but when making long visits they usually lay it aside.

The Saya y Manto are found to be very useful auxiliaries in the numerous intrigues in which the Limeñas frequently engage.

A *Tapada** indulges in a vast deal of freedom when in the streets, and scruples not to make satirical observations on anybody or anything that strikes her as strange or ludicrous. The veil, or manto, is sacred, and should a man attempt to remove it by force, he would run the risk of being severely handled by the populace.

In intrigues of gallantry the Saya y Manto play a conspicuous part. A lady has been known to arrange an assignation with a gentleman in the street, whilst her husband, standing at the distance of a few yards and conversing with a friend on some matter of business, has little suspected that the *Tapada* whose graceful figure he admired, was his own faithful better-half. It frequently happens that Doña Mariquita obliges Doña Merceditas, or Doña Panchita, with the loan of her saya, for the purpose of hood-winking the Argus-eyes of a jealous husband;—the lady being well convinced that her kind friends will render her the

* A *Tapada* is a lady closely concealed beneath the folds of her veil or manto. The term is derived from the verb *tapar*, to cover or conceal. *Taparse a medio ojo*, is said of a lady when she draws her manto over her face so as to leave only one eye or rather the half of an eye uncovered.—T.

like service in similar circumstances. Sometimes a lady may be seen in an old tattered saya, such as scarcely the poorest female might be expected to wear; but the costly shawl, the worked pocket-handkerchief, the silk stockings, and satin shoes, betray the rank of the *Tapada*, and plainly denote that she has sallied forth on an adventure. It is difficult, nay almost impossible, to recognize a lady thus muffled up. The one eye alone visible, is, as may be supposed, a very uncertain token of identity, and the figure and walk may be easily disguised.

It will readily be supposed that these concealments sometimes occasion mortifying mistakes. On beholding a tall slender figure whose symmetrical contour is discernible even through the unwieldy saya, and a bright dark eye beaming beneath the folds of the manto, one may be induced to imagine that the charms of a Hebe are concealed beneath the disfiguring garb. But how great is the disappointment when an accidental movement of the manto discloses the wide mouth of an ugly mulatta grinning from ear to ear.

Most foreigners who marry Limeñas stipulate that from the time of betrothal, their wives shall no longer wear the saya y manto. The condition is agreed to; but how far it is faithfully observed the husbands best know. Many, no doubt, lull themselves in the confidence of their wishes being implicitly obeyed; but female ingenuity readily devises opportunities for deception. The women of Lima never willingly renounce the saya y manto, for it is inseparably associated with customs to which they are, heart and soul, devoted.

If we follow the Limeña (the white Creole, be it understood) into the retirement of domestic life, we find that she is an affectionate mother, but not a very clever housekeeper. Every lady has at her command a great many more domestics than are necessary: some are servants, but most of them slaves. The establishment usually consists of a cook, a nurse-maid, one or two house-maids, a needle-woman, several men-servants, and a little negro or Indian, whose chief business is to carry a carpet behind his mistress when she goes to church. These servants all do as they please, and the lady of the house concerns herself very little about the indolence which her want of vigilance encourages.

She rises at a late hour, and having dressed herself and decorated her hair with sprigs of jasmine and orange blossom, she takes her breakfast. That meal being ended, she goes out to make visits. During the sultry hours of mid-day she reposes, either by swinging in a hammock or reclining on a sofa, and meanwhile smokes a cigar. After dinner she again makes visits, and the evening is spent in the theatre, on the plaza, or on the bridge. Some few ladies employ themselves in needle-work, in which they are often most accomplished adepts; they especially excel in embroidery and fancy work; but they never pursue these employments before company.

The ladies of Lima are passionately fond of music. Most of them play the piano-forte or the guitar, and also sing; but for want of good instruction neither their playing nor their singing is above mediocrity. Smoking is pretty general among females, at least those of mature age; but they indulge in this practice only in their own apartments. Of late years the custom of smoking has been on the decline in Lima, in proportion as it has been increased on the continent of the old world. Though snuff-taking is prohibited in the convents, yet the nuns practise it to a great extent. They use an exceedingly fine kind of red snuff, which has the effect of closing the breathing passage through the nostrils, and of producing a peculiar nasal tone of voice.

With the ladies of Lima, vanity and the love of dress appear to have reached their climax. To this passion for personal adornment they sacrifice everything. Formerly, when none but *real* pearls and diamonds were worn, many a lady was known to have ruined her husband by the purchase of those costly articles; now, however, thanks to French mock jewelry, they are enabled to bedeck themselves in glittering ornaments at trivial expense. Another of their passions is a fondness for perfumes. They are continually besprinkling themselves with *eau de Cologne, esprit de Lavande, agua rica,* or *mistura.* The latter is a fragrant yellow-colored water, prepared from gillyflower, jasmine, and flor de mistela (*Talinum umbellatum*). They perfume their apartments daily with *Sahumerios* (pastiles). When the lady of the house wishes to show particular attention to her visitors, she offers them perfumed water, dropping it into the bosoms of the ladies, and on

the pocket-handkerchiefs of the gentlemen. Considering their free use of perfumes, it is not surprising that the fair Limeñas should be constantly complaining of headache, vertigo, and other nervous ailments, or, to use their own phrase (*los nervios*).

Above all things the Limeñas pride themselves in the excessive smallness of their feet. Whether walking, standing, sitting, swinging in the hammock, or reclining on the sofa, the grand object invariably is to display to advantage the tiny foot. To praise her virtue, her intelligence, her wit, or even her beauty, would be less complimentary to a Limeña than to admire the elegance of her feet. All possible care is taken to preserve the small form of the foot, and the Lima ladies avoid everything that may tend to spread or enlarge it. Their shoes are usually made of embroidered velvet or satin, or of very fine kid, and are so exceedingly small, that they cannot be drawn on and off without difficulty. It is usual to have two new pairs every week, and the expense of a lady's shoes not unfrequently amounts to two hundred dollars per annum. A large foot is a thing held in horror by the Limeñas: they call it *una pataza inglesa* (an English paw). I once heard some Lima ladies extolling in high terms the beauty of a fair European; but all their praises ended with the words:—"Pero que pie, valgame Dios! parece una lancha." (But what a foot, good Heaven! It is like a great boat.) Yet the feet of the lady alluded to would not, in Europe, have been thought by any means large.

Gourmanderie is one of the evil habits of the female inhabitants of Lima. Between meals they are continually eating sweetmeats and a variety of things. At one moment they order *tamal*,* next *omitas*,† then *pan de chancay* (a sweet sort of bread), and biscuits, then *masamorita morada*,‡ or *frijoles coladas*,§ &c.; and yet dinner is partaken with as hearty an appetite as though none of these interludes had been introduced. Can it be matter of surprise that the good ladies are constantly complaining of indigestion and *mal de estomago?*

* A preparation of finely-bruised maize mixed with morsels of pork. It is rolled in maize leaves, and in that manner served up.

† Sweet cakes made of maize and raisins.

‡ A syrup made from the pulp of fruit. § Preserved peas with syrup.

In the interior of the houses cleanliness does not extend beyond those apartments which are open to visitors, namely, the *sala* and the *cuadro*. The other rooms of the house frequently bear more resemblance to a stable than a human habitation, and their condition reflects little credit on the domestic habits of the female inmates. But even this is typical of the national character,—a great outward show and little inward worth.

At first a stranger is struck with the singularity of the names of many of the women of Lima. A child receives the name of the saint or of the festival whose celebration falls on the day of its birth. Those who happen to come into the world on the days on which the Romish Church celebrates the several manifestations of the Virgin receive the most extraordinary names. For example, a child born on the anniversary day of the manifestation to St. Francis on the Snow Mountain, is named *Nièves* (snow). *Pilar* (fountain-basin) is another strange name, conferred in honor of the manifestation of the Virgin at the Fountains in Saragossa. Then there are *Concepcions*, *Natividads*, and *Asuncions*, without number. A girl born on Candlemas-day is named *Candelaria*, and one born on the first day of the year receives the name of Jesus. The singular effect of these names is heightened by the Spanish custom of using diminutives, formed by adding to the name the particle *ito* or *ita*, the former being the masculine, the latter the feminine. It may be readily imagined that a foreigner is not a little startled on hearing a young lady called Doña Jesusita. In some names the diminutive takes a form totally different from the full name; as, for example, Panchita for Francisca, Pepita for Josefa, Conchita for Concepcion. A married woman does not take the family name of her husband, but retains her own, adding to it her husband's name preceded by the particle *de*, as, for example, Doña Maria Juana Rodriguez de Salazar.

On attaining a certain age, the Limeñas totally alter their habits of life. When their beauty fades, and they cease to be the objects of compliment and flattery; or when weary of an idle, luxurious, and, in too many instances, a no very virtuous life, they betake themselves to piety, and become *Beatas*.* The

* Literally Bigots.

Limeña who thus renounces the vanities of the world attends church two or three times every day, confesses at least once every week, retires during Lent to a house of penitence; fasts, prays, and receives the visits of her confessor, to whom she sends presents of sweetmeats;—and should the holy man, as is usually the case, prefer riding to walking, she shows her piety by giving him the use of her *Calesa* to convey him from place to place.

The women of Lima are gifted by nature with extraordinary natural talent, though unfortunately it is rarely cultivated. They possess shrewd and penetrating intelligence, clear judgment, and in general very just views on the ordinary affairs of life. Like the women of the southern provinces of Spain, they are remarkable for quickness and smartness of repartee, and in a wordy contest a Limeña is sure to come off triumphant. They have a great deal of decision of character, and a degree of courage which does not usually fall to the lot of the female sex. In these respects they are infinitely superior to the timid, spiritless men. In the various political revolutions of the country, the women have often taken an active, and, in some instances, a more decided part than the men.

The Indians in Lima form but a small portion of the population, being about 5000 in number. Among them are as many emigrants as natives. Most of the former are from the mountainous districts, and but few are from places on the coast. Their character is, of course, much modified by continual intercourse with the whites; but I will endeavor to describe them as they show themselves in their original purity, marking the distinctions observable between the *Indio Costeño* (the Coast Indian), and the *Indio Serrano* (the mountain Indian). The Indians in Lima are active and industrious. Many of them are shopkeepers, and by the integrity of their dealings they stand on a footing of good credit with the great commercial houses. Those who are employed as servants are less remarkable for industry and honesty. They are reserved and suspicious; qualities especially observable when they have but recently emigrated into Lima. They combine personal vanity with an inconceivable degree of dirtiness. Their intellectual faculties are far beneath those of the

white Creoles, of whom they stand in a degree of fear, which is not easily eradicated.

At a former period there existed in Lima a college exclusively for noble-born Indians; and the eldest sons of the families descended from the Incas, when they wished to study, were received at the expense of the State into the College of San Carlos; but since the declaration of independence, all the privileges enjoyed by the Indians have been annulled.

The negroes in Lima form one-fifth part of the population. Their number amounts to upwards of 10,000, of which 4800 are slaves. Though an article in the Charter of Independence declares that "in Peru no person is born a slave," yet the National Congress has on various occasions thought fit to deviate from this principle. In Huaura it was decreed that children born in slavery shall be free on attaining the age of twenty-five, and the Congress of Huancayo prolonged the period to fifty years. There are no new importations of negroes from Africa, for an article in the Charter just mentioned sets forth that "every person who may be brought, as a slave, from another country to Peru, is free from the moment when he sets foot on the soil of that republic." Accordingly, if a Peruvian take his slave with him on a journey to Chile, and brings him back again, the slave may, on his return, claim his freedom. The only exception to this rule refers to runaway negroes, who, even after years of absence, may be reclaimed on their return. The value of slaves is not so high in Peru as in the southern states of North America. In Lima, the average price of a young, strong, and healthy negro is 400 dollars; the price of a negress, especially a *Negra de Chavra* (capable of field work), is 100 dollars higher. The value of those destined for domestic service depends on character and qualifications. A negress who is a good cook or needlewoman, is of course worth more than a negro who is to be employed as a water-carrier or a footman. In the plantations their value depends wholly on health and strength.

The treatment of slaves in Lima, especially by the Creoles, is exceedingly mild, and generally much on the same footing as the treatment of servants in Europe. It is seldom that a master inflicts severe corporal chastisement on a slave. If the latter

requires punishment, he is sent into the *Panaderia* (the bake-house) to knead the dough and bake the bread, which work they perform under the supervision of a Mayordomo, who is usually a hard task-master. Owing to the heat of the climate, working in the *Panaderia* is more feared by the slaves than any other kind of punishment.

In Lima the special laws for the protection of slaves are more favorable to them than the similar laws of any other slave country. The slaves bring their complaints before a particular judge, whose business it is to protect them against ill-treatment. A slave is free whenever he can pay the sum which his master demands for him,—which sum, in disputed cases, is fixed by legal decision. The slave also possesses the right of selling himself to another master, and the latter may pay the purchase-money to the former owner, who, however unwillingly, is obliged to conclude the bargain. The negroes have ample opportunities for saving money. They are permitted, during five or six hours of the day, to work for themselves; so that in the course of a few years they may with ease save the sum requisite for purchasing their independence. But in general they spend their earnings in mere idle enjoyments, and care but little about obtaining their freedom. As slaves they are provided with lodging, food, and clothing, and they are nursed in sickness; but as soon as they become free, they must supply all these wants for themselves; an undertaking which their natural indolence renders them little inclined to. On the whole, domestic negroes may be said to be willing slaves; it is possibly different with those employed in the plantations, who are liable to harder work and harsher treatment. I knew an old negro, who had hoarded up 6000 dollars, and yet did not purchase his own freedom, though he had paid for the liberation of his children and his two sisters. He often observed to me, that he should not be half so well off if he were free.

The negroes brought from Africa, who are called *Bosales*, are far better than the Creole negroes. In physical strength they are inferior to the latter, and are less lively; yet they are patient, and much more faithful and attached to their masters than the Creole negroes born in Peru. The Bosales all have a certain *degree of pride, but* especially those who are of princely blood.

A gentleman of old Spain bought a young negro princess, who not without the greatest difficulty could be brought to perform the duties of servitude. When she was directed to go to market, she set her basket down on the ground, and signified that she had been accustomed to be served, and not to serve. Some chastisement was resorted to, with the view of compelling her to do the duty allotted to her; but in vain. Her pride and obstinacy remained unconquerable. Sometimes she would sit for hours gloomily, with her eyes fixed on the ground, and muttering between her teeth, in her broken Spanish, the words, "*Yo clavita! yo clavita!*"* Then suddenly springing up, she would strike her head against the wall until she became almost senseless. As she showed a fondness for the children of the family, she was relieved from household work, and became the nursery-maid. In that way she discharged the duties which devolved on her with the most touching affection and fidelity; but she never would do anything, however trivial, which she considered to be menial service, and her master and mistress were reasonable enough not to require it.

When the number of the African negroes in Lima was more considerable than it now is, the various races kept together, and formed themselves into unions, called *Cofradias*. They used to meet together at regular periods. At these meetings the negroes of princely descent were treated with marks of respect which they could scarcely have received in their native home. Speeches were delivered, and religious ceremonies performed; whilst music, singing, and dancing, revived recollections of past happiness, and of the far-distant native land. These Cofradias were also conducive to philanthropic ends; for when a slave had a hard master, the sum requisite for purchasing his freedom was raised by a general subscription in the union to which he belonged. Since the independence of Peru, and the consequent prohibition of the importation of negroes, the Cofradias have declined, and have lost much of their original character. Creoles and free negroes have now become members of them. The places in which these meetings are held are situated in the

* Meaning *Yo esclavita!* (I, a slave!) *Esclavita* being the diminutive of *Esclava*.

suburb of San Lazaro. The walls of the rooms are painted with grostesque figures of negro kings, elephants, camels, palm trees, &c.

In Lima, and indeed throughout the whole of Peru, the free negroes are a plague to society. Too indolent to support themselves by laborious industry, they readily fall into any dishonest means of getting money. Almost all the robbers who infest the roads on the coast of Peru are free negroes. Dishonesty seems to be a part of their very nature; and moreover, all their tastes and inclinations are coarse and sensual. Many warm defenders of the negroes excuse these qualities by ascribing them to the want of education, the recollection of slavery, the spirit of revenge, &c. But I here speak of free-born negroes, who are admitted into the houses of wealthy families, who from their early childhood have received as good an education as falls to the share of many of the white Creoles—who are treated with kindness and liberally remunerated, and yet they do not differ from their half-savage brethren who are shut out from these advantages. If the negro has learned to read and write, and thereby made some little advance in education, he is transformed into a conceited coxcomb, who, instead of plundering travellers on the highway, finds in city life a sphere for the indulgence of his evil propensities. What is the cause of this incorrigible turpitude of the negroes? To answer this important question is not easy, if we admit the principle that the negro is as capable of cultivation as the Caucasian; and in support of it the names of some highly-educated Ethiopians may be cited. Those who are disposed to maintain this principle, and who are at the same time intimately acquainted with the social relations of the countries in which free negroes are numerous, may solve the problem. My opinion is, that the negroes, in respect to capability for mental improvement, are far behind the Europeans, and that, considered in the aggregate, they will not, even with the advantages of careful education, attain a very high degree of cultivation; because the structure of the negro skull, on which depends the development of the brain, approximates closely to the animal *form.* The imitative faculty of the monkey is highly developed *in the negro, who* readily seizes anything merely mechanical,

whilst things demanding intelligence are beyond his reach. Sensuality is the impulse which controls the thoughts, the acts, the whole existence of the negroes. To them freedom can be only nominal; for if they conduct themselves well it is because they are compelled, not because they are inclined to do so. Herein lie at once the cause of, and the apology for, their bad character.

The negro women differ but little from the men, in their general characteristics. They are, however, more active and industrious, and better tempered. As domestic servants they are superior to the mixed races. They are much employed as nurses, and in those situations they discharge their duties well. Their personal vanity is boundless, and every real they can save is spent in dress and ornaments. It is amusing to see them, on festival days, parading about the streets, dressed in white muslin gowns trimmed with lace, and short sleeves displaying their black arms. Very short petticoats, seldom extending below the ankle, serve to exhibit the tawdry finery of red silk stockings and light blue satin shoes. From their ears are suspended long gold drops, and their uncovered necks are not unfrequently adorned with costly necklaces. A negress, who was a slave belonging to a family of my acquaintance, possessed a necklace composed of fine Panama pearls, worth several thousand dollars. The pure white of the pearls was wonderfully heightened by the contrast of the jet-black skin of the wearer; and for this reason they were more ornamental to the negress than they would have been to the fairest lady in Europe.

Having noticed the principal races, we will now consider the variegated mass of people of mixed blood, who in Lima form a considerable portion of the population. Stevenson* gives a long list of these mixed races, and specifies the proportionate degree, that is to say, how many eighths or sixteenths of black, brown, or white color belong to each. But these data respecting tint are fallacious, for, being founded solely on external appearance, they are liable to endless modifications. Stevenson falls into the mis-

* Narrative of twenty years' residence in South America, by W. B. Stevenson.

take of giving to the children of a negro father and a white mother, the name of Zambos; whilst to the offspring of a white father and a black mother, he gives the name of Mulattos. By a similar error, he terms the children of a white man and a Cuarterona, Quinteros; and to those of a Cuarteron and a white woman, he gives the designation Cuarterones. It is, however, an established rule, that the children bear the designation, denoting the same degree of mixed blood, whatever may respectively be the colors of the parents. Accordingly, the child of a negro and a white woman is, properly speaking, a Mulatto; just the same as though the relations of race on the part of the parents were transposed. When a man of mixed blood marries a woman darker than himself, and his children thereby become further removed from the white tint, it is said to be *un paso atras* (a step backwards).

In Europe it is very common to attach to the term *Creole*, the idea of a particular complexion. This is a mistake. The designation Creole properly belongs to all the natives of America born of parents who have emigrated from the Old World, be those parents Europeans or Africans. There are, therefore, white as well as black Creoles.*

The subjoined list shows the parentage of the different varieties of half-casts, and also the proper designations of the latter:—

PARENTS.	CHILDREN.
White Father and Negro Mother	Mulatto.
White Father and Indian Mother	Mestizo.
Indian Father and Negro Mother	Chino.
White Father and Mulatta Mother	Cuarteron.
White Father and Mestiza Mother	Creole (only distinguished from the White, by a pale-brownish complexion).
White Father and China Mother	Chino-Blanco.
White Father and Cuarterona Mother	Quintero.
White Father and Quintera Mother	White.

* The term Creole is a corruption of the Spanish word *criollo*, which is derived from *criar* to create or to foster. The Spaniards apply the term *criollo* not merely to the human race, but also to animals propagated in the colonies, but of pure European blood: thus they have *creole* horses, bullocks, poultry, &c.

PARENTS.	CHILDREN.
Negro Father and Mulatta Mother	Zambo-Negro.
Negro Father and Mestiza Mother	Mulatto-Oscuro.
Negro Father and China Mother	Zambo-Chino.
Negro Father and Zamba Mother	Zambo-Negro (perfectly blk).
Negro Father and Cuarterona or Quintera Mother	Mulatto (rather dark).
Indian Father and Mulatta Mother	Chino-Oscuro.
Indian Father and Mestiza Mother	Mestizo-Claro (frequently very beautiful).
Indian Father and China Mother	Chino-Cholo.
Indian Father and Zamba Mother	Zambo-Claro.
Indian Father and China-Chola Mother	Indian (with rather short frizzy hair).
Indian Father and Cuarterona or Quintera Mother	Mestizo (rather brown).
Mulatto Father and Zamba Mother	Zambo (a miserable race).
Mulatto Father and Mestiza Mother	Chino (of rather clear complexion).
Mulatto Father and China Mother	Chino (rather dark).

Besides the half-casts here enumerated, there are many others, not distinguished by particular names, as they do not in color materially differ from those above specified. The best criterion for determining the varieties is the hair of the women: this is far less deceiving than the complexion, for the color of the skin is sometimes decidedly at variance with that characteristic of the race. Some of the Mulatta females have complexions brilliantly fair, and features which, for regularity, may vie with those of the most beautiful women of Europe; but they bear the unmistakeable stamp of descent in the short woolly hair.

The white Creole women of Lima have a peculiar quickness in detecting a person of half-cast at the very first glance; and to the less practised observer they communicate their discoveries in this way, with an air of triumph; for they have the very pardonable weakness of priding themselves in the purity of their European descent. Despite the republican constitution, there prevails throughout Peru a strong pride of cast, which shows itself at every opportunity. In quarrels, for example, the fairer antagonist always taunts the darker one about his descent. By all the varieties, the white skin is envied, and no one thinks of disputing *its superiority of* rank. The Indian looks with abhor-

rence on the Negro; the latter with scorn on the Indio. The Mulatto fancies himself next to the European, and thinks that the little tinge of black in his skin does not justify his being ranked lower than the Mestizo, who after all is only an *Indio bruto*.* The Zambo laughs at them all, and says "if he himself is not worth much, yet he is better than his parents." In short, each race finds a reason for thinking itself better than another.

In the commencement of the present chapter I made the observation that the people of mixed blood unite in themselves all the faults without any of the virtues of their progenitors. To this general remark, however, the Mestizos form an honorable exception. They inherit many of the good qualities both of the Whites and the Indians. They are mild and affectionate. Their feelings are very excitable, and they readily perform an act of kindness or generosity on the impulse of the moment—but they are irresolute and timid. They attach themselves affectionately to the Whites; but they are not partial to the Indians, whom they regard with some degree of contempt. In Lima their number is less considerable than in the interior of the country, where whole villages are inhabited solely by Mestizos. In those places they style themselves Whites, and hold themselves very much aloof from the Indians. One cannot pay them a better compliment than to inquire whether they are Spaniards, a question which they always answer in the affirmative, though their features are plainly impressed with the Indian stamp. The complexion of the Mestizos is usually a clear brown; but in some individuals it has a very dark tinge. Their hair is sleek, long, and very strong. The women frequently wear their hair in two long plaits descending nearly to the knees. The men are strongly made, have marked features and but very little beard. In Lima they are chiefly handicraftsmen and traders. Most of the hawkers (Mercachifles) in Lima are Mestizos.

The Mulattos differ very widely from the Mestizos. In person they are less strongly made; but in intellect they are superior to any of the half-casts. They possess a very great aptitude for

* *A brutish Indian*; a favorite expression of the Limeños when speaking *of the Indians, who certainly* do not merit the compliment.

mechanical employments, great dexterity and a remarkable degree of imitative talent, which, if well directed, might be brilliantly developed. They are exceedingly impressionable, and all their feelings are readily exalted into passions. Indifferent to all but sensual enjoyments, they indulge in the fleeting pleasure of the present moment, and are regardless of the future. There is a certain class of Mulattos, who, in a psychological point of view, are very remarkable. They are distinguished by the nick-name of *Palanganas*.* They are gifted with wonderful memory, and after the lapse of years they will repeat, word for word, speeches or sermons which they have heard only once. With this extraordinary power of memory, they combine a fertile fancy, and a boundless share of self-confidence. Wherever there is anything to be seen or heard, the Palanganas never fail to attend, and they repeat with the most ludicrous attitudes and gestures all that they hear, be it a sermon in church, a speech in Congress, or an address delivered at any public solemnity.

The Mulattos now study theology; for, since the establishment of independence, the Indian law, which prohibited any person of mixed blood from entering the ecclesiastical state, is no longer observed. Many have devoted themselves to medicine; and most of the physicians in Lima are Mulattos; but they are remarkable only for their ignorance, as they receive neither theoretical nor clinical instruction. Nevertheless, they enjoy the full confidence of the public, who rank the ignorant native far above the educated foreigner. The business of a barber is one that is much followed by the Mulattos of Lima. In that occupation they are quite in their element, for they possess all the qualifications for which the members of that fraternity are distinguished in all parts of the world.

Among the Mulatto females many are remarkably beautiful—though they are always wanting in that oval form of the face which is the first condition of classic beauty. Their countenances are generally round and broad, their features strongly marked,

* The word *Palangana* signifies a wash-hand-basin; but more especially the kind of basin used by barbers. Figuratively the term is used to designate *an empty babbler*

and their expression impassioned. Their beauty soon fades; and as they advance in life the negro character of their features becomes distinctly defined. Their hair, which does not grow beyond a finger's length, is jet black and frizzy. They plait it very ingeniously in small tresses, frequently making more than a hundred. Their complexions vary from white to dark-brown; but most of them are dark brunettes, with large black eyes and pearl-white teeth.

Their vanity is quite equal to that of the Negresses, but it is combined with a certain degree of taste, in which the latter are wanting. The Mulatto women are passionately fond of music, singing and dancing. They play the guitar and have pleasing voices, but their singing is quite uninstructed.

The Zambos are the most miserable class of half-casts. With them every vice seems to have attained its utmost degree of development; and it may confidently be said that not one in a thousand is a useful member of society, or a good subject of the state. Four-fifths of the criminals in the city jail of Lima are Zambos. They commit the most hideous crimes with the utmost indifference, and their lawless propensities are continually bringing them into collision with the constituted authorities. In moral nature they are below the Negroes; for they are totally wanting in any good qualities possessed by the latter. Their figures are athletic, and their color black, sometimes slightly tinged with olive-brown. Their noses are much less flat than those of the Negroes, but their lips are quite as prominent. Their eyes are sunk and penetrating, and their hair very little longer than that of the Negroes, but curling in larger locks. The men have very little beard.

The Chinos are but little superior to the Zambos. Indeed, in physical formation they are inferior to them, for they are small and attenuated. Their countenances are hideously ugly. They have the Negro nose and mouth, and the Indian forehead, cheeks and eyes. Their hair is black, rough, but less frizzy than that of the Mulattos. They are deceitful, ill-tempered, and cruel. They never forget an offence, but brood over it till an opportunity, however distant, presents itself for wreaking their vengeance. *They are very dange*rous enemies.

Respecting the half-casts of fairer complexion, especially the Cuarterones and the Quinteros, there is but little to be said. Both physically and morally they approximate closely to the whites, among whom they almost rank themselves.

The majority of the foreigners in Lima, and indeed throughout the whole of Peru, are the families of the Spaniards from Europe, who emigrated to South America before the war of independence. Since the close of that struggle there has been but little emigration, as the circumstances of the country are not now very favorable to new settlers. The old Spanish families are for the most part landed proprietors or merchants. They are people of very temperate habits, but they are passionately fond of gaming, and in this respect they have bequeathed a dangerous inheritance to the Creoles. The pride and mercenary spirit which distinguished the Spaniards before the independence are now broken, if not entirely subdued. The intercourse between them and the natives, though still somewhat constrained, is every year becoming more and more friendly, as the privileges enjoyed by the Spaniards, which were a continued cause of hostile feeling, are now removed.

Next to the Spaniards, the most numerous class of foreigners are the Italians. These are chiefly Genoese, and the majority are run-away sailors and adventurers. They usually begin by setting up a Pulperia (a brandy shop), or a spice shop, and gradually extend their traffic until, in the course of a few years, they amass money enough to return to their native country. Some of them make good fortunes and possess extensive warehouses.

The French in Lima occupy the same positions as their countrymen in Valparaiso, viz., they are tailors and hair-dressers, dealers in jewellery and millinery.

The English and North Americans, who are much better liked by the natives than the French, are chiefly merchants. They are the heads of the principal commercial houses, as Gibbs, Crawley & Co., Alsop & Co. Templeman and Bergmann, Huth, Crüning & Co., &c. The enterprising spirit of the English and North Americans has led many of them into extensive mining

speculations, which in some instances have proved very unfortunate.

The Germans in Lima are proportionally few. They are distinguished by their aptitude for business, and many of them fill high stations in the great English commercial houses. They are held in high esteem by the natives. The general gravity of their manners has given rise, among the Limeños, to the saying, "*Serio como un Aleman*"—Serious as a German.

Settlers from the other American republics have of late years considerably increased in Lima. After the Chilian expedition, many Chilenos established themselves in Peru, and numbers of Argentinos, escaping from the terrorism of Rosas in Buenos Ayres, have taken refuge in Lima.

Foreigners being in general more industrious and more steady than the Creoles, the Limeños readily form connexions with them. The ladies generally prefer marrying a *Gringo** to a *Paisanito*.†

I may close this chapter on the inhabitants of Lima, with some remarks on the Spanish language as spoken in the capital of Peru. The old Spaniards, who brought their various dialects into the New World, retain them there unchanged. The Galician transposes the letters *g* and *j*; the Catalonian adds an *s* to the final syllables of words, and gives a peculiarly harsh sound to the letter *j*; the Andalusian rolls the *r* over his tongue, and imparts a melodious expression even to harsh-sounding words; the Biscayan mingles a variety of provincialisms with his own peculiar dialect. The Madrileño (native of Madrid) prides himself here, as well as in Europe, in being far superior to the rest of his countrymen in elegance of pronunciation. The Creoles, however, have gradually dropped the characteristic dialects of their progenitors, and have adopted new ones, varying one from another in the different South American provinces. The Spanish language, as spoken by the natives of Peru, differs widely

* *Gringo* is a nickname applied to Europeans. It is probably derived from *Griego* (Greek). The Germans say of anything incomprehensible, "That sounds like Spanish,"—and in like manner the Spaniards say of anything *they do not* understand, "That is Greek."

† *Paisanito is the diminutive* of *Paisano* (Compatriot)

from the correct and pure model of pronunciation. The inhabitants of the coast have too soft an accent, and they frequently confound, one with another, letters which have a mutual resemblance in sound. On the other hand, the people who dwell in the mountainous districts speak with a harsh accent, and very ungrammatically. As the Swiss force out their guttural tones from the lowest depth of their throats, and with the strongest possible aspiration, so do the Peruvians of the Cordillera. The inhabitants of the sand flats of North Germany, on the contrary, impart a ludicrously soft sound to the harsher consonants; and the same peculiarity is observable in the people who inhabit the coast of Peru.

Of all the inhabitants of Lima, the white Creoles speak the best Spanish; but still their language is far from pure. The ladies in particular have the habit of substituting one letter for another in certain words; for example, instead of *pulso* (pulse) they say *purso*, and instead of *salsa* (sauce) they say *sarsa*. In other words they substitute *d* for *r*, saying *amod* for *amor*, *cavalledo* for *cavallero*. The *ll* is frequently sounded by the Peruvians like *y*, a blunder which foreigners are also very apt to commit; for example, in the word *pollo* (chicken), which they pronounce as if it were spelled *poyo*, and *gallina* (hen) they pronounce as if spelled *gayina*. Not only do they confound single letters, but they frequently change whole syllables; as for instance, in the word *pared* (wall), which they transform into *pader*. The name of the well-known ex-President Orbegoso was, by two-thirds of the natives of Lima, pronounced as if written *Obregoso*. There is no word in the Spanish language beginning with an *s* followed by a consonant, and the Limeños, when they attempt to pronounce foreign words or proper names commencing in the manner just described, never fail to prefix to them the letter *e*. I know not whether in the schools and colleges of old Spain this method of prefixing the letter *e* is adopted in teaching Latin; but the practice is universal among the students of all the colleges in Lima. For studium they say *estudium*; for spurius, *espurius*; for sceleratus, *esceleratus*, &c.

To the Limeños the correct pronunciation of these words is extremely difficult, and many have assured me that they find it

impossible to omit the *e* before the *s*. Still more arbitrary is their conversion of *h* into *k* in the words mihi, nihil, &c., which they pronounce *miki*, *nikil*.

The colored Creoles, who are generally uneducated, speak the Spanish language much more corruptly than the whites. The Negroes have a very bad accent. Their tongues seem quite unfitted for the pronunciation of the Spanish language, which many of them render unintelligible by transposing letters and lopping off syllables.

CHAPTER VI.

Primary Schools—Colleges—The University—Monks—Saints—Santo Toribio and Santa Rosa—Religious Processions—Raising the Host—The Noche Buena—The Carnival—Paseos, or Public Promenades—Ice—Riding and Driving—Horses—Their Equipments and Training—Mules—Lottery in Lima—Cookery—Breakfasts, Dinners, &c.—Coffee-houses and Restaurants—Markets—The *Plaze Firme del Acho*—Bull Fights.

Schools for primary instruction are numerous in Lima, and upon the whole they are tolerably well conducted. There are thirty-six of these primary schools, public and private; twenty for boys, and sixteen for girls; and altogether about 2000 pupils* receive in these establishments the first elements of juvenile instruction. The principal public institutions of this class are the Normal School of Santo Tomas (in which the Lancasterian system is adopted), and the Central School of San Lazaro. Each contains from 320 to 350 pupils. Of the private schools, some are very well conducted by Europeans. The College of Nuestra Señora de Guadalupe was founded a few years ago by two Spanish merchants. In this establishment the sons of the wealthier class of people may receive a better education than they can obtain in the public schools. There are three Latin schools, and the number of pupils attending them amounts to about two hundred.

The College of Santo Toribio is exclusively appropriated to students of theology, who are likewise received into the College of San Carlos, though the latter is chiefly destined for the study of jurisprudence. San Carlos was founded in the year 1770 by the Viceroy Amat, who incorporated with it the previously existing Colleges of San Martin and San Felipe. In the year 1822

* *A very small* number in a population of 55,000.

the Colegio de Esquilache was likewise united to San Carlos, which now contains about a hundred students. The building is large and commodious, containing spacious halls, a fine refectory, and a well-stored library. There are five professors of law and two of theology. French, English, geography, natural philosophy, mathematics, drawing, and music are likewise taught in this college. The annual revenue of the establishment, exclusively of the fees paid by the students, amounts to 19,000 dollars. During the war of emancipation, this establishment for a time bore the name of Colegio de San Martin, in honor of General San Martin, the liberator of Chile; but its original title was soon restored.

The Colegio de San Fernando was founded in 1810 by the Marques de la Concordia, for students of medicine. In the year 1826 this Institution received the name of *Colegio de la Medecina de la Independencia*, a title which it justly merits, for certainly medicine is taught there with a singular independence of all rules and systems. The Professors, who themselves have never received any regular instruction, communicate their scanty share of knowledge in a very imperfect manner to the students. The number of the students is between twelve and fifteen, and there are two Professors. The clinical lectures are delivered in the Hospital of San Andres, to which an anatomical amphitheatre was attached in 1792. The heat of the climate renders it necessary that burials should take place within twenty-four hours after death, a circumstance which naturally operates as an impediment to the fundamental study of anatomy. It cannot therefore be matter of surprise that the native surgeons should have but a superficial knowledge of that important branch of science.

In the University of San Marcos no lectures are delivered, and the twenty-five Professors' chairs are merely nominal. Honors and degrees are however conferred in San Marcos, and the same rules and ceremonies are observed as in the Spanish Universities. In the departments of medicine and jurisprudence there are three degrees; those of Bachelor, Licentiate, and Doctor. In former times the dignity of Doctor was conferred with great pomp and solemnity, and the public were admitted in large numbers to witness the ceremony. The acquisition of the

degree of Doctor was then attended by an expense of about two thousand dollars, chiefly expended in presents. The new Doctor was required to send to every member of the University, from the Bachelors to the Rector, a new dollar, a goblet full of ice, and a dish of pastry.

Lima is overrun with monks, lay and conventual. The monastic regulations are not very strict, for the monks are permitted to leave the convents at all hours, according to their own pleasure. They avail themselves of this liberty to the utmost extent. Friars of various orders are seen in the streets in numbers. Most of them are fat Dominicans, who sit in the Portales playing at draughts, or lounge in shops staring at the *Tapadas* as they pass by. Many of these ecclesiastics are remarkable for their disregard of personal cleanliness; indeed it would be difficult to meet with a more slovenly, ignorant, and common-place class of men. They frequent all places of public entertainment, the coffee-houses, the chichereas, the bull-fights, and the theatres: these two last-mentioned places of amusement they visit in disguise. The Franciscans and the Mercenarias are little better than the Dominicans; but the Descalzados (barefooted friars) lead a somewhat more strict and regular life. To the monks of the *Buena Muerte* belongs the duty of administering the last consolation to the dying. Whenever they hear of any person who is dangerously ill, they hasten to the house without waiting till they are sent for, and they never leave the invalid until he either recovers or dies. Day and night they sit by the sick-bed, and scarcely allow themselves time for necessary rest and refreshment. I have known many of these monks who, from long experience and observation, but without any medical knowledge, had acquired wonderful shrewdness in determining the degree of danger in cases of illness, and who could foretel with almost unfailing certainty the moment of dissolution. As soon as the patient has breathed his last, the monk utters a short prayer, then giving the corpse a knock on the nose, he silently takes his departure. I have frequently witnessed this singular custom, but I never could discover its origin or motive. The habit worn by the monks of *Buena Muerte* is black, with a large red cross on the breast, and hats with high conical crowns.

Many pious natives, or inhabitants of Lima, have been admitted among the number of the saints. Of these the most distinguished was the Spaniard Toribio, who, at the beginning of the seventeenth century, filled the archiepiscopal chair in Lima. His kindness and charity have become proverbial, and his many acts of benevolence are still alive in the recollection of the people. Of many anecdotes that are related of him, I may here quote one. Late one night, the patrol who was on duty in the vicinity of the archbishop's palace, met a man in the street carrying a heavy load on his back. The challenge, "Who goes there?" was answered by the name "Toribio." The watch, uttering an oath, impatiently called out "Que Toribio?" (What Toribio?) "El de la esquina!" (He who dwells at the corner!) was the simple reply. The soldier angrily stepped up to his interlocutor, and, to his astonishment, recognized the archbishop, who was carrying a sick person to the hospital.

The saint to whom the Limeños render the highest honor, is Santa Rosa, the saint of the city. She was a native of Lima, and is the only Peruvian female who has attained the honor of being ranked among the saints. On the 30th of August, the festival of Santa Rosa is celebrated with great pomp in the cathedral, and her image, richly bedecked with gold and jewels, is carried in solemn procession from Santo Domingo to the Sagrario.

Religious processions are among the most favorite amusements of the inhabitants of Lima. They are always very numerously attended; and it may fairly be said that no merry-making would afford the Limeños so much diversion as they derive from these pious solemnities. Vast numbers of ladies join the processions as Tapadas, indulging in all sorts of coquettish airs, and with thoughts evidently bent on any subject but religion. The gentlemen station themselves in groups at the corners of the streets, to admire the graceful figures of the Tapadas, whose faces are concealed; and when the procession has passed one corner they rush to another, to see it defile a second time; and in this manner continue moving from place to place, as if they could never *see* enough of the interesting spectacle. The most brilliant pro*cessions are those* which take place on the festivals of Corpus

Christi, San Francisco, and Santo Domingo. A very solemn procession takes place on the 28th of October, the anniversary of the great earthquake of 1746.

Every morning, at a quarter to nine, the great bell of the cathedral announces the raising of the host, during the performance of high mass. Immediately every sound is hushed in the streets and squares. Coachmen stop the carriages, riders check their horses, and foot-passengers stand motionless. Every one suspends his occupation or his conversation, and kneeling down, with head uncovered, mutters a prayer. But scarcely has the third solemn stroke of the bell ceased to vibrate, when the noise and movement again resumed; the brief but solemn stillness of the few preceding moments being thus rendered the more impressive by contrast. The same incident is renewed in the evening, between six and seven o'clock, when the bell sounds for the Angelus (Oraciones). The cathedral bell gives the signal, by three slow, measured sounds, which are immediately repeated from the belfries of all the churches in Lima. Life and action are then, as if by an invisible hand, suddenly suspended; nothing moves but the lips of the pious, whispering their prayers. The *Oracion* being ended, every one makes the sign of the cross, and says to the person nearest him, *Bueñas noches* (Good night). It is regarded as an act of courtesy to allow another to take precedence in saying "Good night," and if several persons are together, it is expected that the eldest or the most distinguished of the group should be the first to utter the greeting. It is considered polite to request the person next one to say *Bueñas noches;* he with equal civility declines; and the alternate repetition of "*diga Vm.*" (you say it), "*No, Señor, diga Vm.*" (No, Sir, you say it), threatens sometimes to be endless.

The effect produced by the three strokes of the cathedral bell is truly astonishing. The half-uttered oath dies on the lips of the uncouth negro; the arm of the cruel Zambo, unmercifully beating his ass, drops as if paralyzed; the chattering mulatto seems as if suddenly struck dumb; the smart repartee of the lively Tapada is cut short in its delivery; the shopkeeper lays down his measure; the artizan drops his tool; and the monk suspends his move on the draught-board: all, with one accord,

join in the inaudible prayer. Here and there the sight of a foreigner walking along indifferently, and without raising his hat, makes a painful impression on the minds of the people.

Christmas-night (*Noche buena*) is a great festival in Lima. The streets and squares, especially the *Plaza Mayor*, are crowded with people, amusing themselves in all sorts of ways. Hundreds of persons take their seats on the benches of the Plaza; there they regale themselves with sherbet, ices, and pastry, and look at the dancing of the negroes, &c. On this occasion the midnight mass is performed with extraordinary solemnity. On Christmas-day some of the families of Lima get up what are called *Nacimientos*, consisting of symbolical representations of the birth of the Saviour. On some of these shows considerable expense and ingenuity are bestowed.

In Carnival time Lima is so unpleasant a place of residence that many families retire to the country during that season of misrule. One of the favorite sports consists in sprinkling people with water; and from all the balconies various kinds of liquids are thrown on the passers-by. Groups of Negroes post themselves at the corners of the streets, where they seize people, and detain them prisoners, until they ransom themselves by the payment of a certain sum of money. Those who do not pay the money are rolled in the street gutters, and treated in the most merciless way; whilst those who purchase grace escape with having a few handfulls of dirty water thrown in their faces. Even in private houses, relations and intimate acquaintances are guilty of the most unwarrantable annoyances. Parties of young men enter the houses of families with whom they are acquainted, and begin sprinkling the ladies with scented water. That being exhausted, spring water, or even dirty water, is resorted to, so that what began in sport ends in reckless rudeness. The ladies, with their clothes dripping wet, are chased from room to room, and thereby become heated. The consequence is, in many instances, severe and dangerous illness. Inflammation of the lungs, ague, rheumatism, &c., are the usual results of these carnival sports, to which many fall victims. A year never passes in which several murders are not committed, in revenge for offences perpetrated during the saturnalia of the carnival.

A very favorite trick adopted in carnival time, for frightening people as they pass along the streets, is the following:—a sack, filled with fragments of broken glass and porcelain, is fastened to the balcony by a strong rope, of such a length that, when suspended from the window, the sack is about seven feet above the street. The apparatus being all ready, a mischievous negress and her *amita* (young mistress) watch the passers-by until they select one for their victim. The sack is then thrown over the front of the balcony, and a deafening crash ensues, though the rope prevents its contents from hurting any one. It is well known that in almost every street in Lima there is at least one balcony ready prepared for the performance of this trick; yet the suddenness of the crash always proves a shock, even to the strongest nerves. People start and run to one side of the street, and are sometimes so terrified that they drop down; then loud laughter and jeering remarks are heard in the balcony. Every year this trick is prohibited by the police, but the prohibition is treated with contempt.

One of the most popular recreations of the Limeños, especially of the people of color, is the *Paseo de Amancaes*, which takes place on St. John's Day. The Amancaes is a gently sloping plain, about half a mile north-west of Lima, and it is bounded by a semicircular range of hills, which rise from twelve to fifteen thousand feet above the level of the sea. During the hot months of the year this plain is a parched and barren waste; but when the misty and rainy season sets in, the Amancaes is covered with numerous flowers, among which a beautiful yellow lily is conspicuous. About the end of June this lily is in full bloom. On St. John's Day booths and stalls are fitted up for the sale of various kinds of refreshments, and throngs of people of all classes and colors are seen riding or walking in the direction of the Amancaes. There they amuse themselves with dancing, playing, eating, drinking, and gathering flowers; and in the evening they return to Lima. It is amusing to see the Mulattas and Zambas with bouquets of yellow lilies stuck in their heads and bosoms. These women crowd into heavily-laden vehicles, beside which their black cavaliers ride on horseback—all laughing, jesting, and giving vent to unrestrained mirth. From the 24th

of June to the end of October, pleasure parties repair on Sundays and festival days, either to the Amancaes or to the Lomas. The latter is a range of hills a little further from Lima.

There is no want of promenades in the vicinity of the city. Leading from the Callao gate is the fine long avenue of trees I have already mentioned. In the suburb of San Lazaro there is a fine broad promenade planted with trees, called the *alameda vieja*, at the end of which is situated the Convent of the Descalzos. Along the bank of the Rimac there is a new promenade planted with four rows of trees, called the *alameda nueva*. Behind it the *Paseo militar*, with two rows of trees, extending as far as *Piedra lisa*, on the road to the pleasant village of Lurigancho. On the right of these promenades is the river, on the left the pyramidal hill, of the Cerro de San Cristoval. At the extremity of the Alameda nueva are the Puquio.* These baths are within a long low-roofed building, covered on the top with straw mats.

On summer evenings the bridge and the Plaza Mayor are visited by throngs of promenaders who there enjoy the refreshing breeze, which, after sunset, is wafted from the Cordilleras, along the surface of the Rimac. After the hour of the *Oraciones* (evening prayers), the bridge is crowded with gentlemen, who walk up and down whilst the ladies sit in the rotundas built above each of the piers. Long rows of promenaders are seen moving to and fro, either going to the Alamedas, or returning from thence to the Plaza, to obtain refreshments. Before the Portal de los Escribanos, on the Plaza Mayor, tables are laid out with lemonade, almond milk and ices. The promenaders sit down on benches, which are placed round these tables, and partake of refreshments, none of which, however, are so delicious as the cool breeze after the sultry heat of the day.

To the inhabitants of Lima, ice is one of the necessaries of life: it is considered so indispensable, that a scarcity of it, during several days, would be sufficient to excite popular ferment. In all revolutions, therefore, the leaders carefully avoid calling into requisition the service of the mules employed in the transport of ice. It is obtained in the Cordilleras, at the distance of about

* *Puquio* in the Quichua language signifies springs.

twenty-eight leagues from Lima. The Indians who ascend the glaciers break the ice into blocks of about six arobas in weight, which are lowered by ropes down the declivity of the mountain. The women and children then cover the blocks of ice with Ichu grass (*Joara ichu*, R. P.), after which they are drawn by another party of Indians to a depôt, about two leagues distant, where they are packed on the backs of mules. Each mule carries two blocks. Thirty mules form what is called a *Recua*, which daily proceeds from the ice depôt to Lima. At intervals of two or three miles there are stations where relays of mules are in readiness. The operations of unloading and reloading are performed with the utmost possible speed, and the mules are driven at a brisk trot, wherever the roads will admit of it. In the space of eighteen or twenty hours, the ice reaches Lima, and as may be expected, considerably reduced in weight by melting. The average loss on two blocks of ice is about one hundred pounds.* The daily consumption of ice in Lima is between fifty and fifty-five cwt. About two-thirds of that quantity is used for preparing ices, most of which are made of milk or pine-apple juice. Ice is hawked about the streets of Lima for sale, and all day long Indians, carrying pails on their heads, perambulate the streets, crying *helado*.

The ladies of Lima, when they make visits, seldom go on foot. They generally ride in the *caleza*, a very ugly kind of vehicle, being nothing more than a square box raised on two high wheels, and drawn by a mule, on whose back a negro in livery is mounted. Many of the older calezas, instead of being painted on the outside, are covered with variegated paper. The calezin is a prettier kind of carriage, and is drawn by two horses or mules. Taste in the article of carriages is, however, improving in Lima, and several very elegant ones have been recently introduced.

Within the last few years a regular line of omnibuses has been established between Callao and Lima. From each of those

* These fine blocks of ice clearly refute the assertion made by some travellers, that the first real glaciers are found in 19° S. lat. The extensive fields of ice from which the blocks in question are brought are situated in 11° 14′ S. lat.

cities an omnibus starts daily, at eight in the morning and at four in the afternoon, and the journey occupies an hour and a half. To Miraflores, Chorillos, Lurin, and other places on the coast, the conveyance is by a *balanzin*, a sort of caleza, drawn by three horses harnessed abreast. This balanzin is one of the most awkward vehicles ever invented, and the slightest shock it sustains is felt with double force by the persons riding in it. At greater distances from the capital, the want of proper roads renders the employment of vehicles a matter of difficulty. Even along the coast to the south of Lima, a journey of about forty leagues cannot be accomplished without vast difficulty and expense. On such a journey it is usual for a train of sixty or eighty horses to accompany the carriage; and it is found necessary to change the horses every half-hour, owing to the difficulty of drawing the carriage through the fine quicksand, which is often more than a foot deep. A Peruvian planter, who was accustomed to take his wife every year on a visit to his plantation, situated about thirty-two leagues from Lima, assured me that the journey to and fro always cost him 1400 dollars.

During the brilliant period of the Spanish domination, incredible sums were frequently expended on carriages and mules. Not unfrequently the tires of the caleza wheels and the shoes of the mules were of silver instead of iron.

In Peru, riding is a universal custom, and almost every person keeps one or more horses. The ladies of Lima are distinguished as graceful horsewomen. Their equestrian costume consists of a white riding-habit, trowsers richly trimmed with lace, a fine white poncho, and a broad-brimmed straw hat. Some of the females of the colored races make use of men's saddles, and display great skill in the management of the most unruly horses.

The horse-trappings used in Peru are often very costly. On the coast and in the interior, I have sometimes seen head-gear, bridle, and crupper, composed of finely-wrought silver rings, linked one into another. The saddle is frequently ornamented with rich gold embroidery, and the holster inlaid with gold. The stirrups are usually the richest portion of the trappings. They *are made of carved* wood, and are of pyramidal shape; about a

foot high and a foot broad at the base. In front and at the sides they are close, and are open only at the back in the part where the foot rests. The edges are rimmed with silver, and the top of the stirrup is surmounted by a bell of the same metal, with a ring through which the straps are passed. A priest with whom I was acquainted in the Sierra, got a saddle and a pair of stirrups made for me. The silver ornaments on the stirrups alone weighed forty pounds. The decorations of the saddle were of corresponding richness. The value of the silver on both saddle and stirrups was about 1500 dollars. The spurs used in Peru are of colossal magnitude. Old custom ordains that they must contain three marks (a pound and a half) of silver. The stirrup-bow is broad and richly wrought; the ornaments being either of the pattern called *hueso de tollo*,* or of that styled *hoja de laurel con semilla*.† The rowel is one and a half or two inches in diameter, and the points are about twenty-five or thirty inches long.

In the bridle, the bit and the snaffle are in one piece, and the reins are brought together by being passed through a ring, to which the long riding-whip is also fastened. The head-band and reins are commonly composed of narrow slips of untanned calf or sheep-skin, plaited together, and ornamented with silver buckles. The saddle is short and narrow, and exceedingly awkward to riders unaccustomed to it. The front bolster is four or five inches high, and inclines backward; the hind one is lower, and is curved forward in the form of a half-moon; the intervening space just affording sufficient room for the thighs of the rider, who, in a saddle of this construction, is so firmly fixed that he cannot possibly fall. These saddles have, however, one great disadvantage, viz., that if the horse starts off at a gallop, and the rider has not time to throw himself back in his seat, he is forced against the front saddle-bolster with such violence that some fatal injury is usually the consequence. Under the saddle is laid a horse-cloth, called the *pellon*, about a yard long, and a yard and a half wide. The common sort of pellones are composed of two

* A sort of arabesque resembling the backbone of a fish called the *Tollo*.

† *Laurel leaves and seed.*

rough sheep-skins, sewed together. In the finer kind, the raw wool is combed out, and divided into numberless little twists, of about the length of one's finger; so that the pellon resembles the skin of some long-haired animal. The finest Peruvian pellones are made of a mixture of sheep's wool and goat's hair. Between the saddle and the pellon are fastened the saddle-bags (*alforjas*), which, on long journeys, are filled with provisions and other necessaries. These bags are made either of leather or strong woollen cloth; finally, the trappings of a Peruvian horse are not complete without the halter (*haquima*), which is ornamented in the same manner as the bridle. The halter-strap (*cabresto*) is wound round the front bolster of the saddle, and by it the horse may be fastened whenever the rider alights, without the use of the reins for that purpose. At first a foreigner is apt to regard the equipments of a Peruvian horse as superfluous and burthensome; but he is soon convinced of their utility, and, when the eye becomes familiar to them, they have a pleasing effect.

The pure-bred Peruvian horse is more elegantly formed than his Andalusian progenitor. He is of middling size, seldom exceeding fourteen hands high. He has a strong expanded chest, slender legs, thin pasterns, a short muscular neck, a rather large head, small pointed ears, and a fiery eye. He is spirited, docile, and enduring. It is only in a few plantations that the purity of the race is preserved, and the animals fostered with due care. The common horse is higher, leaner, less broad on the chest, and with the crupper thinner and more depressed. He is, however, not less fiery and capable of endurance than the horse of pure breed. The most inferior horses are ill-looking, small, and rough-skinned.

On the coast of Peru the horses are for the most part natural amblers, and, if they do not amble naturally, they are taught to do so. There are several varieties of amble peculiar to the Peruvian horse; the most approved is that called the *paso llano*. It is very rapid, but not attended by any jolting motion to the rider. A well-trained horse may safely be ridden by a young child at the *paso llano*; the motion being so gentle and regular, that the rider may carry a cup of water in his hand without

spilling a drop, at the same time going at the rate of two leagues an hour. Another variety of ambling is called the *paso portante*. It consists in the fore and hind foot of one side being raised simultaneously, and thrust forward. In this movement, the greater or less speed depends on the degree in which the hind foot is advanced in comparison with the fore one. It is a rapid, rocking sort of motion, and for long continuance is much more wearying to the rider than the common trot, as the body cannot be held upright, but must be kept in a constant stooping position. The speed of a good ambler in the *paso portante* is so great, that he will outstrip another horse at full gallop. The giraffe, as well as the Peruvian horse, has this peculiar movement naturally. The *paso compañero* is merely a nominal modification of the *paso portante*. Many horses have no *paso llano*, but in its stead a short trot. These have naturally the *paso portante*, but they are little esteemed for travelling, though they are good working animals. They are called *cavallos aguchillos*. Trotting horses cannot be taught the *paso llano*, though they easily acquire the *paso portante*. These are called *cavallos trabados*.

In Peru a horse is valued less for beauty of form than for the perfection of his amble. The finest trotters are sold at very low prices, and are used exclusively as carriage horses. If a horse when spurred has the habit of flapping his tail, it is considered a serious fault, and greatly depreciates the value of the animal. This vice is called *mosquear* (literally brushing off the mosquitoes), and the Peruvians cure it by an incision in the muscle of the tail, by which means the horse is disabled from making the movement.

The Peruvians take very little care of their horses. The remark, that the more the horse is tended, the worse he is, would seem to be a generally admitted truth in Peru. The stable (*coral*) is either totally roofless, or very indifferently sheltered. In the mountainous parts of the country, and during the rainy season, horses are frequently, for the space of six months, up to their knees in mud, and yet they never seem to be the worse for it. The fodder consists of lucern (*alfalfa*), or maisillo, which is usually thrown down on the ground, though sometimes placed in a stone trough, and the drink of the animals consists of impure

water collected from the ditches at the road sides. Occasionally the horses are fed with maize, which they are very fond of. As no oats are grown in Peru, barley is given together with maize, especially in the interior of the country. Mares and geldings have sometimes the hair between the ears cut off quite closely, and the mane arranged in short curls, which gives them a resemblance to the horses in ancient sculpture. Mares are but little valued, so little indeed, that no respectable person will ride one.

The horse-breakers (*chalanes*) are generally free men of color. They possess great bodily vigor, and understand their business thoroughly; but they use the horses very cruelly, and thereby render them shy. For the first three years foals are suffered to roam about with perfect freedom; after that time they are saddled, an operation not performed without great difficulty, and sometimes found to be impracticable, until the animal is thrown on the ground and his limbs tied. The young horse under the management of the *chalan* is trained in all sorts of equestrian feats, especially the art of pirouetting (*voltear*). This consists in turning either wholly or half round on the hind legs with great rapidity and when at full gallop. Another important object of the *chalan* is to teach the horse to stop short suddenly, and to stand perfectly motionless (*sentarse*) at the signal of his rider; and to go backward (*cejar*) for a considerable space in a straight line. When all this is accomplished, the horse is regarded as completely broken (*quebrantado*).

As an instance of the certainty with which a Peruvian horse will make a pirouette (*voltata*) at the signal of his rider, I may mention the following fact, which occurred under my own observation. A friend of mine, in Lima, rode at full gallop up to the city wall (which is scarcely nine feet broad), leaped upon it, and then made his horse perform a complete *voltata*, so that the forefeet of the animal described the segment of a circle beyond the edge of the wall. The feat he performed several times in succession, and he assured me he could do the same with all his horses.

Peruvian taste requires that the neck of the horse should present a finely-curved outline, and that the mouth should be drawn inward, so as to approach the breast. The horses called *Cavallos*

de Brazo are much esteemed. At every step they describe a large circle with their fore-feet, in such a manner that the horse-shoe strikes the lower part of the stirrup. This motion is exceedingly beautiful when combined with what is termed the "Spanish pace," in which the noble form of the animal and his proud bearing are advantageously displayed.

The mule is a very important animal in Peru. The badness of the roads would render commercial communication impracticable, were it not for mules. The Peruvian mules are fine, strong animals. The best are reared in Piura, and sent to Lima for sale. The amblers are selected for the saddle, the trotters for harness, and the rest are used as beasts of burthen. The price of a mule of middling quality is one hundred dollars; a better one double or treble that price; and the very best may even cost ten times as much. The endurance of these animals under fatigue and indifferent nurture is extraordinary, and without them the vast sand plains of Peru would present insuperable obstacles to intercourse between one place and another. In the power of continuous ambling they exceed the horses, and are often equal to them in speed.

In Lima there is a public lottery, which the Government farms to a private individual, for a considerable sum. The tickets are drawn weekly. The price of a ticket is one real. The largest prize is 1000 dollars; the smaller prizes 500, 250, or 100 dollars. A lottery on a larger scale is drawn every three months. The highest prize in this lottery is 4000 dollars, and the price of the ticket is four reals. To every ticket is affixed a motto, usually consisting of an invocation to a saint, and a prayer for good luck, and at the drawing of the lottery this motto is read aloud when the number of the ticket is announced. Few of the inhabitants of Lima fail to buy at least one ticket in the weekly lottery. The negroes are particularly fond of trying their luck in this way, and in many instances fortune has been singularly kind to them.

"Eating and drinking keep soul and body together." So says the German proverb; and it may not be uninteresting to take a glance at the Limeños during their performance of these two important operations. The hour of breakfast is generally nine in

the morning. The meal consists of boiled mutton (*Sancochado*), soup (*Caldo*), with yuccas, a very pleasant-tasted root, and *Chupe*. This last-mentioned dish consists, in its simplest form, merely of potatoes boiled in very salt water, with cheese and Spanish pepper. When the chupe is made in better style, eggs, crabs, and fried fish are added to the ingredients already named; and it is then a very savory dish. Chocolate and milk are afterwards served. A negress brings the *Chocolatera* into the breakfast-room, and pours out a cup full for each person. The natives prefer the froth to the actual beverage; and many of the negresses are such adepts in the art of pouring out, that they will make the cup so overflow with foam, that it contains scarcely a spoonful of liquid. Chocolate is the favorite beverage of the Peruvians. In the southern parts of the country it is customary to offer it to visitors at all hours of the day. The visitor is no sooner seated than he is presented with a cup of coffee, which is often so thick that the spoon will stand upright in it. It would be a breach of politeness to decline this refreshment, and whether agreeable or not it must be swallowed!

The best cocoa is obtained from the Montañas of Urubamba, and from the Bolivian Yungas. The long land transport, however, renders it very dear, and therefore the nuts brought from Guayaquil are those commonly used in Lima.

Dinner, which takes place about two or three in the afternoon, commences with a very insipid kind of soup. This is followed by the *Puchero*, which is the principal dish. Puchero, made in its best style, contains beef, pork, bacon, ham, sausage, poultry, cabbage, yuccas, camotes (a sort of sweet potato), potatoes, rice, peas, *choclitas* (grains of maize), quince and banana. When served up, the different kinds of meat are placed in one dish, and the vegetable ingredients in another. I was at first astonished at the poorness of the soups in Lima, considering the quantity of meat used in preparing them; but I soon discovered that the SOUP served up to table was little more than water, and that the strong gravy of the meat was either thrown away or given to the negroes. There prevails an almost universal belief that the liquor in which the meat is first stewed is injurious to health. Only a very few families are sufficiently free from this prejudice

to allow the strong gravy to be used in the preparation of *caldo*, &c. The Puchero is an excellent and nutritious dish, and would in itself suffice for a dinner, to which, however, in Lima, it is merely the introduction. Roast meat, fish, vegetables, preserves and salad are afterwards served. Another dish not less indispensable to a Lima dinner than *puchero*, is *picante*. Under this denomination are included a variety of preparations, in which a vast quantity of cayenne pepper is introduced. The most favorite *picantes* are the *calapulcra*, the *lagua*, the *zango*, the *charquican*, the *adobas*, the *picante de ullucos*, &c. The *calapulcra* is composed of meat and potatoes dried and finely pounded; the *lagua* is made of maize flour and pork; the *zango*, of the same ingredients, but differently prepared; the *adobas* consists of pork alone; and the *picante de ullucos* is made of a root resembling the potato, cut into small square bits. These dishes, though much too highly seasoned for European palates, are considered great dainties by the Limeños. All the *picantes* have a very red color, owing to the quantity of cayenne used in preparing them; the *achote* grains, which are also used, produce a beautiful vermilion tint. Another dish, common on the dinner-table in Lima, is called *ensalada de frutas*. It is a most heterogeneous compound, consisting of all sorts of fruits stewed in water. To none but a Limanian stomach could such a mixture be agreeable. The dessert consists of fruits and sweets (*dulces*). The Limeño must always drink a glass of water after dinner, otherwise he imagines the repast can do him no good; but to warrant the drinking of the water, or, as the phrase is, *para tomar agua*, it is necessary first to partake of *dulces*. The one without the other would be quite contrary to rule. The dulces consist of little cakes made of honey or of the pulp of the sugar-cane; or they are preserved fruits, viz., pine-apple, quince, citron, and sometimes preserved beans or cocoa-nut. There is also a favorite kind of dulce made from maize, called *masamora*.

The Peruvians have some very singular prejudices on the subject of eating and drinking. Every article of food is, according to their notions, either heating (*caliente*), or cooling (*frio*); and they believe that certain things are in opposition one to another, or, as the Limeños phrase it, *se oponen*. The presence in the

stomach of two of these opposing articles of food, for example, chocolate and rice, is believed to be highly dangerous, and sometimes fatal. It is amusing to observe the Limeños when at dinner, seriously reflecting, before they taste a particular dish, whether it is in opposition to something they have already eaten. If they eat rice at dinner, they refrain from drinking water, because the two things *se oponen*. To such an extreme is this notion carried, that they will not taste rice on days when they have to wash, and laundresses never eat it. Frequently have I been asked by invalids whether it would be safe for them to take a foot-bath on going to bed, as they had eaten rice at dinner!

The white Creoles, as well as all the superior class of people in Lima, are exceedingly temperate in drinking. Water and a kind of sweet wine are their favorite beverage; but the lower classes and the people of color are by no means so abstemious. They make free use of fermented drinks, especially brandy, chicha, and guarapo. The brandy of Peru is very pure, and is prepared exclusively from the grape. On the warm sea coast, the use of this liquor is not very injurious; there, its evil effects are counteracted by profuse perspiration. But one half the quantity that may be drunk with impunity on the coast, will be very pernicious in the cool mountainous regions. An old and very just maxim of the Jesuits is, "*En pais caliente, aguardiente; en pais frio, agua fria*" (in the warm country, brandy; in the cold country, water).

Guarapo is a fermented liquor, made of sugar-cane pulp and water. It is a very favorite beverage of the negroes. There are several kinds of guarapo. The best sorts are tolerably agreeable. *Chicha* is a sort of beer prepared from maize. The seeds of the maize are watered and left until they begin to sprout, after which they are dried in the sun. When sufficiently dry they are crushed, boiled in water, and then allowed to stand till fermentation takes place. The liquid is of a dark yellow color, and has a slightly bitter and sharp taste. Chicha is likewise made from rice, peas, barley, yuccas, pine-apples, and even bread. The kind most generally used is that made from maize. Even before the Spanish conquest of Peru, this maize beer was the common beverage of the Indians. In Lima there are some very

dirty and ill-arranged *restaurations*, styled *picanterias*. These places are divided by partitions into several small compartments, each of which contains a table and two benches. The *restaurateur*, usually a zambo or a mulatto, prides himself in the superiority of his *picantes* and his *chicha*. The most motley assemblages frequent these places in the evening. The Congo negro, the grave Spaniard, the white Creole, the Chino, together with monks and soldiers, may be seen, all grouped together, and devouring with evident relish refreshments, served out in a way not remarkable for cleanliness. Brandy and guarapo are likewise sold in shops which are to be met with at the corner of almost every street. The coffee-houses are very inferior; most of them are very dirty, and the attendance is wretched.

Every street in Lima contains one or more cigar shops, in which mestizos and mulattos are busily employed in making cigars. Smoking is a universal custom, and is practised everywhere except in the churches. The cigars used in Lima are short, and the tobacco is rolled in paper, or in dried maize leaves. The tobacco is brought from the northern province, Jaen de Bracamoras, in very hard rolls called *masos*, about a yard long and two inches thick. Another kind of cigars is made of Peruvian or Columbian tobacco. They are scarcely inferior to the Havannah cigars, and would be quite equal to them, if they were kept long enough and well dried: but in Lima they are smoked within a few hours after being made. When any one wants to light his cigar in the street, he accosts the first smoker he happens to meet, whatever be his color, rank, or condition; and asks him for a light. The slave smokes in the presence of his master, and when his cigar dies out, he unceremoniously asks leave to relight it at his master's. It has been calculated that the daily cost of the cigars smoked in Lima and the immediate vicinity amounts to 2,300 dollars.

Formerly the market was held on the Plaza Mayor, and was always abundantly supplied with vegetables, fruit, and flowers. Now it is held in the Plazuela de la Inquisicion, and it is very inferior to what it used to be. Along the sides of the Plaza are stalls kept by women, who sell sausages and fish. The central part of the market is appropriated to the sale of vegetables, of

which there is always an excellent supply. Facing the Palace of the Inquisition are the butchers' shops. The meat is good, though not very plentifully displayed. The most abundant kinds of meat are mutton and beef. The slaughtering of young animals being strictly prohibited by law, veal, lamb, and sucking pigs are never seen in the market. The daily consumption of butcher's meat in Lima is about twenty-eight or thirty heads of horned cattle, and between one hundred and sixty and two hundred sheep. Pork, neither fresh nor cured, is seen in the market; though great numbers of swine are slaughtered. The fleshy parts of the animal are cut into small square pieces, and boiled; the fat or lard is used in cookery, and the pieces of pork, which are spread over with lard, are called *chicharones*, and are held in high esteem by Limanian epicures. There is an abundant show of poultry in the market, especially fowls and turkeys, which are brought from Huacho. Game is never sold, and but very little is obtained in the neighborhood of Lima. The flower market, which is held on the Plaza Mayor, is but sparingly supplied with the gifts of Flora. The ladies of Lima recal pleasing recollections of the former glory of their flower market, and speak with regret of its present degenerate condition. The much-vaunted *pucheros de flores* are still occasionally displayed for sale. They are composed of a union of fragrant fruits and flowers. Several small fruits are laid on a banana leaf, and above them are placed odoriferous flowers, tastefully arranged according to their colors: the whole is surmounted with a strawberry, and is profusely sprinkled with *agua rica*, or lavender water. These *pucheros* are very pleasing to the eye, on account of the tasteful arrangement of the flowers; but their powerful fragrance affects the nerves. They vary in price, according to the rarity of the fruits and flowers of which they are composed. Some cost as much as six or eight dollars. A *puchero de flores* is one of the most acceptable presents that can be offered to a Lima lady.

A mingled feeling of disgust and surprise takes possession of the European who witnesses the joy which pervades all classes of the inhabitants of Lima on the announcement of a bull-fight. For several days the event is the exclusive topic of conversation,

and, strange to say, the female portion of the population takes greater interest in it than the men. Bills notifying the approaching entertainment are stuck up at the corners of the streets; and every one is anxious to obtain a *lista de los toros*. When the season of the toros* commences, a bull-fight takes place every Monday, and then the whole city of Lima is thrown into a state of indescribable excitement. The ladies prepare their finest dresses for the occasion, and they consider it the greatest possible misfortune if anything occurs to prevent them going to the bull-fight: indeed, a Monday passed at home in the season of the toros would be regarded as a lost day in the life of a Limeña. Those who cannot go to the *corrida*, resort to the bridge, or to the Alameda, where they sit and amuse themselves by looking at the throngs of people passing and repassing.

In the time of the Viceroys, bull-fights frequently took place on the Plaza Mayor. Now there is a place expressly built for these entertainments, called the *Plaza firme del Acho*. It is a spacious amphitheatre without a roof, and is erected at the end of the new avenue of the Alameda. The preparations for the sport commence at an early hour in the morning. Along the Alameda are placed rows of tables covered with refreshments, consisting of lemonade, brandy, chicha, picantes, fish, dulces, &c. About twelve o'clock, those who have engaged places in the amphitheatre begin to move towards the Plaza del Acho.

Most European ladies would turn with horror, even from a description of these cruel sports, which the ladies of Lima gaze on with delight. They are barbarous diversions, and though they form a part of national customs, they are nevertheless a national disgrace. At the same time it would be unjust to make this love of bull-fighting a ground for unqualified censure on the Limeños, or a reason for accusing them of an utter want of humanity. 'Being accustomed to these diversions from early childhood, they regard them with perfect indifference; and custom, no doubt, blinds them to the cruelties they witness in the bull-ring. The same extenuation may be urged in behalf of the

* *Toros* (Bulls) is used by way of contraction for *Corrida de Toros* (Bull Course).

women: and though to most of the Limeñas a bull-fight affords the highest possible gratification, yet there are some who form honorable exceptions to this remark, and who, with true feminine feeling, shrink with horror from such scenes.

Peru is the only one of the South American states in which bull-fights are included in the category of public amusements. As Peru was the last to answer the cry of independence, and to shake off the yoke of Spanish domination, so she adheres with most tenacity to the customs of the mother country; for she has not the energy requisite for developing a nationality of her own. Even here is apparent that want of independence of character for which the Peruvians are remarkable. The faults of the Spaniards in them become vices, because, in imitating without reflecting, they push everything to an extreme. Thus, if bull-fights are cruel in Spain, they are barbarous in Lima. The government, too, finds it expedient to court popularity by favoring public entertainments, among which bull-fights take the lead. By allowing the people to indulge unrestrainedly in all their favorite amusements, the government gains a two-fold object, viz., that of securing the support, if not the love of the people, and of averting public attention from political affairs. These, it must be confessed, are important objects in a country which, like Peru, is continually disturbed by revolutions caused by the outbreaks of a turbulent populace, or an undisciplined army.

CHAPTER VII.

Geographical Situation of Lima—Height above Sea level—Temperature—Diseases—Statistical Tables of Births and Deaths—Earthquakes—The Valley of Lima—The River Rimac—Aqueducts, Trenches, &c.—Irrigation—Plantations—Cotton—Sugar—Various kinds of Grain—Maize—Potatoes, and other tuberous roots—Pulse—Cabbage—Plants used for Seasoning—Clover—The Olive and other Oil Trees—Fruits—Figs and Grapes—The Chirimoya—The Palta—The Banana and other Fruits.

LIMA, according to the careful observations made by Herr Scholtz, is situated in 12° 3′ 24″ south latitude, and 77° 8′ 30″ west longitude from Greenwich. It may, however, be mentioned that the longitude from Greenwich is very differently stated. In sea charts and Manuals of Geography it is often marked 76° 50′. Humboldt makes it 77° 5′ 5″; and Malaspina 77° 6′ 45″. According to Ulloa it is 70° 37′ west of Cadiz. The latitude is very generally fixed at 12° 2′ 3″ south. The height above the level of the sea is also differently estimated. Rivero, in the *Memorial de Ciencias Naturales*, I., 2, page 112, states it to be 154 metres, or 462 French feet. On another occasion he makes it 184$\frac{1}{2}$ Castilian varas (each vara being equal to 33 inches English). He gives the following account of heights, according to the barometer, between Callao and Lima, in varas, viz., Callao, 00; Baquijano, 24$\frac{3}{4}$; *La Legua*, 50$\frac{3}{4}$; Mirones, 94$\frac{3}{20}$; Portada del Callao, 150; *Plaza de Lima*, 184$\frac{1}{2}$.

The first estimate given by Rivero is the most correct. Gay makes the height of Lima, at the corner of the church of *Espiritu Santo*, 172·2 Castilian varas; but most of his heights are incorrectly stated.

The conical hill in the north-east of Lima, called Cerro d San Cristoval, is, according to trigonometrical measurement made in 1737, by Don Jorge Juon, and De la Condamines, 31 *varas higher than* the Plaza Mayor, or 134 toises above the

but one of the most exact measurements is Pentland's, who found the height to be 1275 English feet.

The average temperature during the hottest period of the year, from December to March, is 25°C. The medium temperature during the cold season, from April to November, 17·5° C. Highest rise of the hygrometer, 21·5°.

The low temperature of Lima at the distance of only twelve degrees from the Equator is to be ascribed to the situation of the town, and the prevailing atmospheric currents. The Cordilleras, rising at the distance of only twenty-eight Spanish leagues east of the city, are crowned with eternal snow; and on the west the sea is distant only two leagues. The prevailing wind blows from the south-south-west. West winds are not very common, though they sometimes blow with extraordinary violence for those regions, and breaking on the surrounding mountains, they form atmospheric whirlwinds, which diffuse alarm through the whole population. In June, 1841, I had the opportunity of observing one of these dreadful whirlwinds, which swept away huts, and tore up trees by the roots. The atmospheric currents from the north, which pass over the hot sand-flats, are not of constant occurrence, but they are oppressively sultry. There must be other causes for the low temperature of Lima, for in the villages, only a few miles from the city, and exposed to the same atmospheric influences, it is much higher.

Miraflores is a small place, about one Spanish league and a half from Lima, but it is much hotter. Among the records of the thermometer are the following:—

December 20 to 27, maximum 31·8° C.; minimum, 25·9° C.

December 28, at 6 in the morning, 26·0 C.; at 2 P.M., 32·7° C.; at 10 at night, 27·3° C.

January 1, at 2 P.M., 33·1° C., maximum of the day.

January 18, at 2 P.M., maximum 34·2° C.

A comparison with the temperature of Lima, on the same days, gives an average of 5·7° C. of heat in favor of Miraflores.

The River Rimac, which rises among the glaciers of the Cordilleras, and after a course of no great length, intersects the city, doubtless contributes to cool the atmosphere.

The climate of Lima is agreeable, but not very healthy. Dur-

ing six months, from April to October, a heavy, damp, but not cold mist, overhangs the city. The summer is always hot, but not oppressive. The transition from one season to another is gradual, and almost imperceptible. In October and November the misty canopy begins to rise; it becomes thinner, and yields to the penetrating rays of the sun. In April the horizon begins to resume the misty veil. The mornings are cool and overcast, but the middle of the day is clear. In a few weeks after, the brightness of noon also disappears. The great humidity gives rise to many diseases, particularly fevers, and the alternations from heat to damp cause dysentery. On an average, the victims to this disease are very numerous. It is endemic, and becomes, at apparently regular but distant periods, epidemic. The intermittent fevers or agues, called *tercianos*, are throughout the whole of Peru very dangerous, both during their course and in their consequences. It may be regarded as certain that two-thirds of the people of Lima are suffering at all times from *tercianos*, or from the consequences of the disease. It usually attacks foreigners, not immediately on their arrival in Lima, but some years afterwards. In general the tribute of acclimation is not so soon paid by emigrants in Lima as in other tropical regions.

In consequence of the ignorance of the medical attendants, and the neglect of the police, the statistical tables of deaths are very imperfectly drawn up, and therefore cannot be entirely depended upon. I may, however, here subjoin one of them, which will afford the reader some idea of the mortality of Lima.

The annual number of deaths in Lima varies from 2,500 to 2,800.

In the ten months, from the 1st of January to the 30th of October, 1841, the number of marriages was 134, of which 46 were contracted by whites, and 88 by people of color.

DEATHS IN LIMA FROM JANUARY 1, TO OCTOBER 30, 1841:—

Diseases.	Men.	Women.	Children.	Total.
Dysentery	171	105	59	335
Fevers, chiefly intermittent	57	88	71	216
Typhus	14	7	24	45
Pulmonary Consumption	87	110	11	208
Inflammation of the Lungs	78	75	26	179
Dropsy, for the most part a consequence of intermittent fevers	33	32	7	72
Hooping-cough			36	36
Small Pox	3		1	4
Sudden death	23	13	1	37
Shot	3			3
Various Diseases	271	228	610	1,109
	740	658	846	2,244

The number of births were:—

	Boys.	Girls.	Total.
In marriage	410	412	822
Not in marriage	432	428	860
	842	840	1,682

The number of births not in marriage (860) is remarkable, and no less so is the number of dead children exposed, which, during the above interval, was 495. These are most decided proofs of the immorality and degraded state of manners prevailing in Lima, particularly among the colored part of the population. Though there is no certain evidence of the fact, yet there is reason to conjecture that a considerable number of those infants are destroyed by the mothers. Of the children born out of marriage, nearly two-thirds, and of those exposed dead, full four-fifths are Mulattos.

The important annual surplus of deaths over births is a matter of serious consideration for Lima. The above tables show, in the course of ten months, a surplus of 562 deaths. By a comparison of the lists of births and deaths from 1826 to 1842, I find that on an average there are annually 550 more deaths than births. It *would lead me too far* to endeavor to investigate all the grounds

of this disparity, but I may observe that one of the causes, unquestionably, is the common, though punishable crime of producing abortion.

Along the whole coast of Peru the atmosphere is almost uniformly in a state of repose. It is not illuminated by the lightning's flash, or disturbed by the roar of the thunder: no deluges of rain, no fierce hurricanes destroy the fruits of the fields, and with them the hopes of the husbandman. Even fire appears here to have lost its annihilating power, and the work of human hands seems to be sacred from its attack.* But the mildness of the elements above ground is frightfully counterbalanced by their subterranean fury.

Lima is frequently visited by earthquakes, and several times the city has been reduced to a mass of ruins. At an average forty-five shocks may be counted on in a year. Most of them occur in the latter part of October, in November, December, January, May, and June. Experience gives reason to expect the visitation of two desolating earthquakes in a century. The period between the two is from forty to sixty years. The most considerable catastrophes experienced in Lima since Europeans have visited the west coast of South America, happened in the years 1586, 1630, 1687, 1713, 1746, 1806. There is reason to fear that in the course of a few years this city may be the prey of another such visitation.

The slighter shocks are sometimes accompanied by a noise; at other times, they are merely perceptible by the motion of the earth. The subterraneous noises are manifold. For the most part they resemble the rattling of a heavy loaded wagon, driven rapidly over arches. They usually accompany the shock, seldom precede it, and only in a few cases do they follow it; sounding like distant thunder. On one occasion the noise appeared to me like a groan from the depth of the earth, accompanied by

* A great fire is a thing almost unknown in Lima. The houses are of brick, and seldom have any wooden beams, so there is little food for a fire. The only fire which I heard of in Lima was that of the 13th January, 1835, when the interior of the *Capilla del Milagro* of San Francisco was destroyed. The repairs cost 50,000 dollars. On the 27th November, 1838, *it was again solemnly consecrated.*

sounds like the crepitation of wood in partitions when an old house is consumed by fire.

Of the movements, the horizontal vibrations are the most frequent, and they cause the least damage to the slightly-built habitations. Vertical shocks are most severe; they rend the walls, and raise the houses out of their foundations. The greatest vertical shock I ever felt was on the 4th of July, 1839, at half-past seven in the evening, when I was in the old forests of the Chanchamoyo territory. Before my hut there was an immense stem of a felled tree, which lay with its lower end on the stump of the root. I was leaning against it and reading, when suddenly, by a violent movement, the stem rose about a foot and a half, and I was thrown backwards over it. By the same shock the neighboring river, Aynamayo, was dislodged from its bed, and its course thereby changed for a considerable length of way.

I have had no experience of the rotatory movements of earthquakes. According to the statements of all who have observed them, they are very destructive, though uncommon. In Lima I have often felt a kind of concussion, which accords with that term in the strictest sense of the word. This movement had nothing in common with what may be called an oscillation, a shock, or a twirl: it was a passing sensation, similar to that which is felt when a man seizes another unexpectedly by the shoulder, and shakes him; or like the vibration felt on board a ship when the anchor is cast, at the moment it strikes the ground. I believe it is caused by short, rapid, irregular horizontal oscillations. The irregularity of the vibrations is attended by much danger, for very slight earthquakes of that kind tear away joists from their joinings, and throw down roofs, leaving the walls standing, which, in all other kinds of commotion, usually suffer first, and most severely.

Humboldt says that the regularity of the hourly variations of the magnetic needle and the atmospheric pressure is undisturbed on earthquake days within the tropics. In seventeen observations, which I made during earthquakes in Lima with a good Lefevre barometer, I found, in fifteen instances, the position of the mercury quite unaltered. On one occasion, shortly before a commotion, I observed it 2·4 lines lower than it had been two

hours before. Another time, I observed, also on the approach of the shock and during the twelve following hours, a remarkable rising and sinking in the column. During these observations the atmosphere was entirely tranquil.

Atmospheric phenomena are frequent, but not infallible prognostics of an earthquake. I have known individuals in Lima, natives of the coast, who were seldom wrong in predicting an earthquake, from their observation of the atmosphere. In many places great meteors have been seen before the commotion. Before the dreadful earthquake of 1746, there were seen fiery vapors (*exhalaciones encendidas*) rising out of the earth. On the island of San Lorenzo these phenomena were particularly remarked.

Many persons have an obscure perception—a foreboding, which is to them always indicative of an approaching earthquake. They experience a feeling of anxiety and restlessness, a pressure of the breast, as if an immense weight were laid on it. A momentary shudder pervades the whole frame, or there is a sudden trembling of the limbs. I, myself, have several times experienced this foreboding, and there can scarcely be a more painful sensation. It is felt with particular severity by those who have already had the misfortune to have been exposed to the dangers of an earthquake.

I will here only briefly mention the celebrated earthquake of 1746, as all its details are fully described in many publications. The reader need scarcely be reminded that it happened on the 28th of October, the day of St. Simon and St. Jude. During the night, between ten and eleven o'clock, the earth having begun to tremble, a loud howling was heard, and, in a few minutes, Lima became a heap of ruins. The first shock was so great, that the town was almost completely destroyed by it. Of more than 3000 houses, only twenty-one remained. Still more horrible was the destruction in the harbor of Callao. The movement of the earth had scarcely been felt there, when the sea, with frightful roaring, rushed over the shore, and submerged the whole town, with its inhabitants. Five thousand persons were instantly buried beneath the waves. The Spanish corvette San Fermin, which lay at anchor in the port, was thrown over

the walls of the fortress. A cross still marks the place where the stern of the vessel fell. Three merchant vessels, heavily laden, suffered the same fate. The other ships which were at anchor, nineteen in number, were sunk. The number of lives sacrificed by this earthquake has not been, with perfect accuracy, recorded.* Humboldt, in his Cosmos, mentions that during this earthquake a noise like subterraneous thunder was heard at Truxillo, eighty-five leagues north of Callao. It was first observed a quarter of an hour after the commotion occurred at Lima, but there was no trembling of the earth. According to the old chronicle writers, the earthquake of 1630 was more disastrous.

The serious commotions which take place on the Peruvian coast appear to acquire progressively greater extension, but only in the southern and northern directions. A shock, of which Lima is the centre, though felt fifty leagues towards the north, and as far towards the south, may, nevertheless, be imperceptible in the easterly direction (towards the mountains) at the distance of ten or twelve leagues. This peculiarity is made manifest, not only by the terraqueous oscillations, but also by the undulations of the sound, which usually proceeds still further in a direction towards the south or the north.

Slight shocks are usually only local, and are not felt beyond the limits of a few square miles.

The atmospheric phenomena during and after earthquakes are very different. In general, the atmosphere is tranquil, but occasionally a stormy agitation is the harbinger of a change. I was unexpectedly overtaken by a violent commotion on the sand-flat between Chancay and Lima. The whole surface of the plain presented a kind of curling movement, and on every side small columns of sand rose, and whirled round and round. The mules stopped of their own accord, and spread out their legs as for sup-

* The date of this catastrophe recalls the following passage in Schiller's William Tell :—

" 's ist heut Simons und Judä
Da ras 't der See und will sein Opfer haben."

" 'Tis the festival of Simon and Jude,
And the lake rages for its sacrifice."

port and to secure themselves against apprehended danger. The *arieros* (mule-drivers) leaped from their saddles, threw themselves on their knees beside the animals, and prayed to heaven for mercy.

The effect of earthquakes on the fertility of the soil is sometimes remarkable. Numerous observations tend to show that after violent commotions luxuriant lands often become barren wastes, and for several years produce no thriving vegetation. Several Quebradas in the province of Truxillo, formerly remarkable for their fertility in grain, were left fallow for twenty years after the earthquake of 1630, as the soil would produce nothing. Similar cases occurred at Supe, Huaura, Lima, and Yca. All kinds of grain appear to be very susceptible to the changes produced by earthquakes. Cases are recorded in which, after slight shocks, fields of maize in full bloom have withered; and in the course of a day or two the crops have perished.

The causes of the frequent earthquakes on the coast of Lima are involved in an obscurity too deep to be unveiled. That they are connected with volcanic phenomena seems probable. Lima is more than ninety leagues distant from the nearest active volcano, that of Arequipa. But the earthquakes of the Peruvian capital are uniformly independent of any state of activity in that volcano, and it is certain that the town of Arequipa, which lies at the foot of the mountain, experiences fewer earthquakes than Lima. Of the six serious earthquakes, the dates of which I have mentioned, only that of 1687 stands in connection with a decided shock in Arequipa, and an eruption of the volcano. Earthquakes are of rarer occurrence in the mountainous districts than on the coast, yet Huancavellica, Tarma, Pasco, Caramarca, have been visited by heavy shocks; and within a recent period the village Quiquijana, in the Province of Quipichanchi, Department of Cusco, suffered from a serious commotion. In a letter from an eye-witness I received the following account of it.

"In November, 1840, the earth began to move faintly back and forward, and a dull, distant, subterraneous noise continued without interruption. The first powerful shock occurred on the 23d of December. During the whole month of January, 1841, heavy thunder prevailed, but without any motion of the earth.

On February 11th, we again had a smart shock, and from that day the vibrations recommenced, which, strange enough, were always most violent on Mondays and Thursdays. The subterraneous noise resounded incessantly; but it was heard only in the village; for at the distance of half a league from it all was tranquil. The heaviest shocks were felt in a circuit within the radius of three leagues. From May 21st to June 2d, all was tranquil; after the last-mentioned date the vibrations recommenced, and frequently became heavy commotions. They continued until the middle of July, 1841. From that time we have not been disturbed, and we have now returned to the ruins of our village."

The volcano of Arequipa, which is forty-five leagues distant from Quiquijana, manifested, during the whole of this time, no unusual phenomena, a circumstance which speaks forcibly against the idea of any local connection between the earthquake and the volcano.

On most men earthquakes make a powerful and extraordinary impression. The sudden surprise, often in sleep, the imminent danger, the impossibility of escape, the dull subterraneous noise, the yielding of the earth under the feet,—altogether make a formidable demand on the weakness of human nature.

Humboldt in the Cosmos truly observes—"What is most wonderful for us to comprehend is the undeception which takes place with respect to the kind of innate belief which men entertain of the repose and immovability of the terrestrial strata." And further on he says—"The earthquake appears to men as something omnipresent and unlimited. From the eruption of a crater, from a stream of lava running towards our dwellings, it appears possible to escape, but in an earthquake, whichever way flight is directed the fugitive believes himself on the brink of destruction!" No familiarity with the phenomenon can blunt this feeling. The inhabitant of Lima who, from childhood, has frequently witnessed these convulsions of nature, is roused from his sleep by the shock, and rushes from his apartment with the cry of "*Misericordia!*" The foreigner from the north of Europe, who knows nothing of earthquakes but by description, waits with *impatience to feel the* movement of the earth, and longs to hear

with his own ears the subterraneous sounds which he has hitherto considered fabulous. With levity he treats the apprehension of a coming convulsion, and laughs at the fears of the natives. But as soon as his wish is gratified he is terror-stricken, and is involuntarily prompted to seek safety in flight.

In Lima, the painful impression produced by an earthquake is heightened by the universality of the exercise of the devotions (*plegarias*) on such a calamity. Immediately on the shock being felt, a signal is given from the cathedral, and the long-measured ten-minute tollings of all the church bells summon the inhabitants to prayers.

Taking a comprehensive view of the whole coast of Peru, we perceive that Lima lies in one of those oases which break the continuity of the extensive sand-flats. These valleys present themselves wherever a river, after a short course from the Cordilleras, falls into the sea; they are always fan-shaped widenings of the mountain ravines. The valley of Lima lies in the widest extension of the Quebrada of Mutucamas. This narrow gorge, which has its main direction from E.N.E. to W.S.W., widens at Cocachacra, and extends into San Pedro Mama, where the Quebrada of San Geronimo unites with it. It then runs down to the coast, extending more and more in width, and is intersected by the Rimac.* This river rises in two branches, the largest of which has its source in some small lagunes, in the upper part of Antarangra, on a height 15,600 feet above the level of the sea. The second and shorter branch takes its source from a small lake in the heights of Carampoma, flows through the valley of San Geronimo, and near San Pedro unites with the Rimac. The most considerable streams of the south-eastern con-

* Rimac is the present participle of *rimay*, to speak, to prattle. The river and the valley were known by this name among all the ancient Indians. The oracle of a temple with an idol, which stood in the neighborhood of the present city of Lima, conferred the name. It is said that before the time of the Incas persons suspected of magic were banished to the valley of the Rimac, on which account it obtained the name of *Rimac-malca*, that is, the Witches-valley. This account, which is given by some early travellers, requires farther historical and philological inquiry, before its correctness can be admitted.

fluence are those which rise in the heights of Carhuapampa, and near Tambo de Viso, flow into the main stream. During winter the Rimac is very inconsiderable, but when the rainy season sets in it swells greatly, and in the upper regions, particularly between Surco and Cocachacra, causes great devastations. In the lower part where the bed becomes broad and the banks are not much built on, no considerable damage occurs.

Several small conduits are brought from the Rimac, some for giving moisture to fields, and others for filling the street trenches of Lima. The water for supplying the fountains of the Capital does not, however, come from the river, but from two springs situated 1½ league from Lima in a thicket near an old Indian settlement, called Santa Rosa, in the valley of Surco. They are inclosed within a building called the Puello, or Atarrea, whence the waters are conveyed by a subterraneous trench to the Reservoir (Caja de Santa Tomas), from which it is distributed by pipes to 112 public and private fountains. During the insurrection of the Indians in 1781, which was instigated by the unfortunate Cacique Don José Gabriel Tupac Amaru, one of the sworn determinations of the participators in that very extensive conspiracy was to drive the Spaniards out of Lima by artifice or force. Among the numerous plans for accomplishing that object, I will mention two which have reference to the water of Lima. One scheme was to poison the whole of the inhabitants. For this purpose a rich Cacique of the vale of Huarochirin went to an apothecary near the bridge, and asked for two hundred weight of corrosive sublimate, saying that he would pay well for it. The apothecary had not entire confidence in the Indian, but he did not think it right to forego the opportunity of making a very profitable sale; so, instead of the sublimate, he made up the same quantity of alum for the Cacique and received the price he demanded. Next morning all the water in Lima was unfit for use. On examination it was found that the enclosure of the Atarrea was broken down, and the source saturated with alum. The offender remained undiscovered.

The second plan was formed with more circumspection. The *conspirators* resolved on a certain day to send into the city a *number of Indians*, who were to conceal themselves on the roofs

of the shops (*Pulperias*), in which quantities of firewood were kept for sale. The moment the cathedral struck the hour of midnight, the concealed Indians were to set fire to the wood. Another division of Indians was immediately to dam up the river at the convent of Santa Clara, and thereby lay the streets under water. During the unavoidable confusion, which must have taken place, the main body of the Indians was to enter the town and massacre all the whites. This well-combined plan was by mere accident discovered, when it was of course frustrated.

The fertility of the soil round Lima is very great when irrigation is practicable. Where this cannot be accomplished, the earth withholds even the most scanty vegetation. The *riego*, or irrigation, is thus effected. On certain days the water conduits are closed, and the fields are laid under water. When there is a deficient supply of water, the trenches, or conduits, are not opened till the following day. When, however, the supply of water is abundant, the *riego* takes place early every morning.

As the same identical plants are cultivated along almost the whole coast, I will here notice them, to save the necessity of returning to them hereafter.

Cotton is cultivated only in a few plantations in the immediate vicinity of Lima; but it abounds more in the northern districts, particularly in the department de la Libertad, in the coast province Piura, in Lambayeque, and in Truxillo. In the southern province, Yca, a considerable quantity is also reared for exportation. The brown cotton was chiefly cultivated in the time of the Incas. Most of the bodies found in the ancient graves on the coast are enveloped in this kind of cotton.

The Sugar Cane is cultivated with success in all plantations where there is sufficient moisture of soil; and of all the agricultural produce of the country, yields the greatest profit. The sugar estates lie on the sea-coast, or along the banks of rivers. The vertical limit of the sugar cane growth is on the western declivity of the Cordilleras, about 4500 feet above the level of the sea, at which height I saw fields covered with it. The largest plantations, however, do not rise above 1200 feet above the level of the sea; while those of the same extent on the eastern declivity are at the height of 6000 feet. Within the last forty years

the introduction of the Otaheitan cane has greatly improved the Peruvian plantations in quality, and has more especially increased the quantity of their produce; for the Otaheitan canes are found to yield proportionably one third more than the West India canes, which were previously cultivated.

The preparation of the sugar is, as yet, conducted in a very rude and laborious manner. In most of the plantations the cane is passed through wooden presses with brass rollers. These machines are called *trapiches* or *ingenios*. They are kept in motion by oxen or mules. In some large estates water power is employed, and in San Pedro de Lurin a steam-engine has been put up, which certainly does the work quickly; but it often has to stand for a long time idle. A part of the sugar cane juice is used for making the liquor called guarapo, or distilled for making rum; for since the independence, the law which strictly prohibited the distillation of spirituous liquors in plantations has been repealed. The remainder is boiled down into a syrup, or further simmered until it thickens into cakes, called chancacas, or brown sugar. After a careful purification it is made into the white cakes called alfajores, or prepared as white sugar. In fineness of grain and purity of color it is inferior to the Havannah sugar, which, however, it exceeds in sweetness. The regular weight of the sugarloaf is two arobas; only for convenience of transport into the mountainous districts their weight is sometimes diminished. The consumption of sugar in the country is great and its export is considerable, but it goes only to Chile.

Of the different kinds of grain, maize is most generally and most successfully cultivated in Peru. It grows on the sandy shore, in the fertile mountain valleys, and on the margin of the forest, where the warmth is great. There are several varieties of maize, which are distinguished one from another by the size of the head and by the form and appearance of the grain. The most common kinds on the coast are—1st, the *Mais Morocho*, which has small bright yellow or reddish brown grains; 2d, the *Mais Amarillo*, of which the grain is large, heart-shaped, solid and opaque; 3d, *Mais Amarillo de Chancay*, similar to the *Mais Amarillo, but with* a semi-transparent square-shaped grain, and *an elongated head.* The Morocho and Amarillo maize are

chiefly planted in the eastern declivity of the Andes. They run up in stalks eight or nine feet high, and have enormously large heads. In one of them I counted seventy-five grains in a single row.

Maize forms the bread of the Peruvians. It is almost the only sustenance of the Indians of the mountains, and is the principal food of the slaves on the coast. Like the potatoe in Europe, it is cooked in a variety of ways. Two of the most simple preparations of maize are those called *choclas* and *mote*. *Choclas* are the unripe maize heads merely soaked in warm water; they form a very agreeable and wholesome article of food. *Mote* consists of ripe maize first boiled and then laid in hot ashes, after which the husks are easily stripped off.

As to whether maize is indigenous to Peru, or when it was introduced there, much has already been written, and I shall refrain from entering into the investigation of the question here. I may, however, mention that I have found very well preserved ears of maize in tombs, which, judging from their construction, belong to a period anterior to the dynasty of the Incas; and these were fragments of two kinds of maize which do not now grow in Peru. If I believed in the transmigration and settlement of Asiatic races on the west coast of America, I should consider it highly probable that maize, cotton, and the banana, had been brought from Asia to the great west coast. But the supposed epoch of this alleged immigration must carry us back to the earliest ages; for, that the Incas were (as the greater number of inquirers into Peruvian history pretend) of Asiatic origin, is a mere vague hypothesis, unsupported by anything approximating to historical proof.

Since the earthquake of 1687 the crops of maize on the Peruvian coast have been very inconsiderable. In the mountainous parts it is somewhat more abundant, but still far from sufficient to supply the wants of the country. Chile supplies, in return for sugar, the maize required in Peru. Of the other kinds of grain barley only is raised; but it does not thrive on the coast, and is cultivated successfully at the height of from 7000 to 13,200 feet above the level of the sea. The assertion of some travellers, that *barley was known to* the Peruvians before the arrival of the

Spaniards, is groundless. It is true that barley is sometimes found in pots in Indian graves. Those graves, however, as I have had repeated opportunities of being convinced, belong, without exception, to modern times, chiefly to the seventeenth century.

Potatoes are not planted on the coast, where, it appears, the climate and soil are unfavorable to them. In those parts they are small and watery. On the higher ridges which intersect the coast at short distances from the sea, the potatoe grows wild. I am inclined to believe that the root is indigenous in these parts, as well as in Chiloe and Chile, and that the ancient Peruvians did not obtain this root from the south, but that they removed it from their own high lands in order to cultivate it on a more favorable soil.* The best potatoe grows about twenty-two leagues from Lima, in Huamantanga, which is about 7000 feet above the level of the sea, to the north-west of the Quebrada of Canta. This potatoe is small and round, with a thin white skin, and when bisected the color is a clear bright yellow. It is called the *Papa amarilla*, and there is much demand for it in the markets, where it fetches a good price. The other potatoes come chiefly from the Quebrada of Huarochirin, and they are very well flavored.

The Camotes (*Convolvulus batatas*, L.), not improperly called sweet potatoes, grow to a considerable size. There are two kinds of camotes, the yellow and the violet; the latter are called *Camotes moradas*. These two kinds are much liked for their excellent flavor. Beyond the height of 3500 feet above the level of the sea they cease to grow.

The Aracacha (*Conium moschatum*, H. B. Kth.) grows on the coast, but it is more abundant on the projecting ridges of the Cordilleras, and on the eastern declivity of the Andes. It is a very agreeable and nutritive kind of tuberous vegetable, in flavor not unlike celery. It is cooked by being either simply boiled in water, or made into a kind of soup. In many districts the aracacha yields two crops in the year.

* The Quichua language has no word for potatoe, but in the Chinchaysuyo language, which is spoken along the whole coast of Peru, the potatoe is called *Acsu*.

The Yucca (*Jatropha manihot*) is one of the finest vegetables of Peru. The stalk of the plant is between five and six feet high, and about the thickness of a finger. The roots are from one to two feet long, somewhat of the turnip form. Internally they are pure white; but the external skin is tough, somewhat elastic, and of a reddish-brown color. The roots are the edible parts of the plant. They are very agreeable in taste, and easy of digestion. When raw they are hard and tough, and their taste somewhat resembles chestnuts. When boiled in water the root separates into fibres, and is rather waxy, but when laid in hot ashes it becomes mealy.

In some parts of Peru the Indians prepare a very fine flour from the yucca, and it is used for making fine kinds of bread, and especially a kind of biscuits called *biscochuelos*. The yucca roots are not good after they have been more than three days out of the earth, and even during that time they must be placed in water, otherwise green or black stripes appear on them, which in the cooking assume a pale red color. Their taste is then disagreeable, and they quickly become rotten.

To propagate the yucca the stalk is cut, particularly under the thick part, into span-long pieces, which are stuck obliquely into the earth. In five or six months the roots are fit for use, but they are usually allowed to remain some time longer in the earth. The stalks are sometimes cut off, and the roots left in the earth. They then put forth new leaves and flowers, and after sixteen or eighteen months they become slightly woody. The Indians in the Montaña de Vitoc sent as a present to their officiating priest a yucca, which weighed thirty pounds, but yet was very tender. On the western declivity of the Cordillera, the boundary elevation for the growth of the yucca is about 3000 feet above the level of the sea.

Among the pulse there are different kinds of peas (*garbanzos*) on the coast; beans (*frijoles*), on the contrary, occupy the hilly grounds. All vegetables of the cabbage and salad kinds cultivated in Europe will grow in Peru. The climate, both of the coast and the hills, suits them perfectly; but the hot, damp temperature of the eastern declivity of the Andes is adverse to them. *Numerous varieties* of the genus *Cucurbita* are cultivated in the

chacras, or Indian villages, on the coast. They are chiefly consumed by the colored population. I did not find them very agreeable to the taste. They are all sweetish and fibrous.

Among the edible plants which serve for seasoning or spicery, I must mention the love-apple (*Tomate*), which thrives well in all the warm districts of Peru; and the Spanish pepper (*Aji*), which is found only on the coast and in the mild woody regions. There are many species of the pepper (*Capsicum annuum, baccatum, frutescens, &c.*), which are sometimes eaten green, and sometimes dried and pounded. In Peru the consumption of aji is greater than that of salt; for with two-thirds of the dishes brought to table, more of the former than of the latter is used. It is worthy of remark that salt diminishes, in a very striking degree, the pungency of the aji; and it is still more remarkable that the use of the latter, which in a manner may be called a superfluity, has no injurious effect on the digestive organs. If two pods of aji, steeped in warm vinegar, are laid as a sinapism on the skin, in the space of a quarter of an hour the part becomes red, and the pain intolerable; within an hour the scarf-skin will be removed. Yet I have frequently eaten twelve or fifteen of these pods without experiencing the least injurious effect. However, before I accustomed myself to this luxury, it used to affect me with slight symptoms of gastritis. On the eastern declivity of the Cordilleras I found no capsicum at a greater height than 4800 feet above the level of the sea.

Lucern (*Medicago sativa*), called by the natives *alfa* or *alfalfa*, is reared in great abundance throughout the whole of Peru, as fodder for cattle. It does not bear great humidity, nor severe heat or cold; yet its elevation boundary is about 11,100 feet above the level of the sea. On the coast it flourishes very luxuriantly during the misty season; but during the months of February and March it is almost entirely dried up. The maisillo (*Paspalum purpureum*, R.) then supplies its place as fodder for cattle. In the mountainous districts it is also most abundant during the humid season; but, as soon as the first frost sets in, it decays, takes a rusty-brown color, and remains in a bad state until the beginning of the rainy season. On an average, the *alfalfa may be cut four* times in the year; but in highlying dis-

tricts only three times; and in humid soils on the coast, particularly in the neighborhood of rivers, five times. Once in every four or five years the clover-fields are broken up by the plough, and then sown with maize or barley. In the sixth year clover is again raised.

The olive-tree is cultivated chiefly in the southern provinces of the coast. In flavor, its fruit approximates to the Spanish olive. That the oil is not so fine is probably owing to the bad presses which are used, and the rude manner in which the operation is performed. The olives (*Aceytunas*) are preserved in a peculiar manner. They are allowed to ripen on the tree, when they are gathered, slightly pressed, dried, and put up in small earthen vessels. By this process they become shrivelled and quite black. When served up at table pieces of tomato and aji are laid on them: the latter is an excellent accompaniment to the oily fruit. Some preserve them in salt water, by which means they remain plump and green.

The castor-oil plant (*Ricinus communis*) grows wild, but it is also cultivated in many plantations. The considerable quantity of oil which is pressed out of the seeds is used unpurified in Lima for the street lamps, and also in the sugar plantations, for greasing the machines employed in the works. The purified Ricinus oil required for medicine is imported from England or Italy.

The Piñoncillo tree (*Castiglionia lobata*, R.) is cultivated only about Surco, Huacho, and Lambayeque, in some of the Indian chacras; but it grows wild in considerable abundance. Its bean-like fruit, when roasted, has an agreeable flavor. When eaten raw, the etherial oil generated between the kernel and the epidermis is a strong aperient, and its effect can only be counteracted by drinking cold water. When an incision is made in the stem, a clear bright liquid flows out; but after some time it becomes black and horny like. It is a very powerful caustic, and retains its extraordinary property for years.

The fruits of the temperate climates of Europe thrive but indifferently in the warm regions of the coast of Peru. Apples and pears are for the most part uneatable. Of stone fruits only the peach succeeds well. Vast quantities of apricots (called *duraznos*) grow in the mountain valleys. Of fifteen kinds which

came under my observation, those called *blanquillos* and *abridores* are distinguished for fine flavor. Cherries, plums, and chestnuts I did not see in Peru, yet I believe the climate of the Sierra is very favorable to their growth. Generally speaking, the interior of the country is well suited to all the fruits and grain of central Europe; and doubtless many of our forest trees would flourish on those Peruvian hills which now present no traces of vegetation. But as yet no system of transplantation has been seriously set on foot. The praiseworthy attempts made by many Europeans, who have sent seeds and young plants to Peru, have failed of success, owing to the indifference of the natives to the advancement of those objects.

All the fruits of southern Europe thrive luxuriantly in the warm regions of Peru. Oranges, pomegranates, lemons, limes, &c., grow in incredible abundance. Though the trees bloom and bear fruit the whole year round, yet there are particular times in which their produce is in the greatest perfection and abundance. On the coast, for example, at the commencement of winter, and in the woody districts in the months of February and March, melons and Sandyas (*water melons*) are particularly fine.

The figs are of two kinds: the one called *Higos*, and the other *Brevas*. In the former the pulp is red, in the latter it is white. They are usually large, very soft, and may be ranked among the most delicious fruits of the country. Fig-trees grow frequently wild in the neighborhood of the plantations and the Chacras: and the traveller may pluck the fruit, and carry away a supply for his journey; for, beyond a certain distance from Lima figs are not gathered, being a fruit not easy of transport in its fresh state; and when dried, it is not liked. Pomegranates and quinces seldom grow on the coast: they are chiefly brought to the Lima market from the neighboring Quebradas. The mulberry-tree flourishes luxuriantly and without cultivation; but its fruit is not thought worth gathering, and it is left as food for the birds. In the southern province of Yca, the cultivation of the vine has been attended by most successful results. In the neighborhood of Lima grapes are seen only in a few Huertas (*orchards*); but for size, sweetness, and aromatic flavor, there are no such grapes in *any other part of the* world.

Of tropical fruits, the number is not so great in Peru as in the more northerly district of Guayaquil. But there are some Peruvian fruits, the delicious flavor of which cannot be excelled. One of these is the Chirimoya (*Anona tripetala*). Hanke, in one of his letters, calls it "a master-work of Nature." It would certainly be difficult to name any fruit possessing a more exquisite flavor.

In Lima the Chirimoya is comparatively small, often only the size of an orange. Those who have tasted it only in Lima, can form but a very imperfect idea of its excellence. In Huanuco, its indigenous soil, it grows in the greatest perfection, and often attains the weight of sixteen pounds, or upwards. The fruit is of roundish form, sometimes pyramidal, or heart-shaped, the broad base uniting with the stem. Externally it is green, covered with small knobs and scales, and often has black markings like network spread over it. When the fruit is very ripe, it has black spots. The skin is rather thick and tough. Internally, the fruit is snow-white and juicy, and provided with a number of small seeds well covered with a delicate substance. The Chirimoyas of Huanuco are also distinguished from those of the coast by having only from four to six seeds; whereas on the coast they are found with from twenty-five to thirty. The question as to what the taste of this fruit may be compared with, I can only answer by saying, that it is incomparable. Both the fruit and flowers of the Chirimoya emit a fine fragrance, which, when the tree is covered with blossom, is so strong as to be almost overpowering. The tree which bears this finest of all fruits is from fifteen to twenty feet high. It has a broad flat top, aud is of a pale-green color.

The Palta (*Persea gatissima*, Gärt.) is a fruit of the pear form, and dark-brown in color. The rind is tough and elastic, but not very thick. The edible substance, which is soft and green, encloses a kernel resembling a chestnut in form and color. This fruit is very astringent and bitter, and on being cut, a juice flows from it which is at first yellow, but soon turns black. The taste is peculiar, and at first not agreeable to a foreigner; but it is generally much liked when the palate becomes accustomed to it. *The fruit of the* Palta dissolves like butter on the tongue, and

hence it is called in some of the French colonies *beurre végétale*. It is sometimes eaten without any accompaniment, and sometimes with a little salt, or with oil and vinegar. The kernels make very good brandy. The Palta-tree is slender and very high, with a small dome-like top. On the eastern declivity of the Andes, I have seen some of these trees more than sixty feet high.

The Platanos (*Bananas*) thrive well in most of the Peruvian plantations. They require great heat and humidity. They grow in the greatest perfection on the banks of small rivulets. On the coast the tree does not yield such abundance of fruit as in the woody regions, where it is not unusual to see a tree with three hundred heads of fruit lying one over another, like tiles on a roof. In the country adjacent to Lima, and also on other parts of the coast, three favorite species are cultivated. The *Platano de la Isla*, or of Otaheite, was introduced from that archipelago in1769. The fruits are from three to four inches long, generally prismatic, as they grow thickly on the stem, and lie one over another. The skin is yellow, the fruit of a palish red, and rather mealy. The Limeños prefer this to any other species of the platano, and they consider it the most wholesome. The fruits of the *Platano Guineo* are not longer, but much thicker than those of the *Platano de la Isla*, but they are so full that they burst when quite ripe. They are straight and cylindrical in form, as they grow on the stem at some distance one from the other. They are of a bright yellow color, but near the stem spotted with black. The edible part is whiter and softer than that of the *Platano de la Isla*, to which it is greatly superior in flavor and aroma. The natives believe this fruit to be very unwholesome, and they maintain that drinking brandy after eating Platanos Guineos causes immediate death. This is, as my own often-repeated experiments have shown, one of the deep-rooted, groundless prejudices to which the Peruvians obstinately cling. On one of my excursions I had a controversy on this subject with some persons who accompanied me. To prove how unfounded their notions were, I ate some platanos, and then washing down one poison by the other, I immediately swallowed a mouthful of brandy. My Peruvian friends were filled with dismay. Addressing me alternately *in terms of compassion* and reproach, they assured me I should

never return to Lima alive. After spending a very agreeable day, we all arrived quite well in the evening at Lima. At parting, one of my companions seriously observed that we should never see each other again. Early next morning they anxiously called to inquire how I was, and finding me in excellent health and spirits, they said:—"Ah! you see, an *herege de gringo* (a heretic of a foreigner) is quite of a different nature from us." A piece of the Platano Guineo soaked in brandy retains its color unchanged; but the rib-like fibres which connect the rind with the pulp then become black, and imbibe a bitter taste.

The fruit of the third kind of platano, the *Platano Largo*, is from six to eight inches long, rather narrow, and curved crescent-wise. The rind is of a light straw color, and when the fruit is very ripe it has large black spots. The edible part is of a whitish hue, harder and drier than that of the two species already described; and its flavor its quite as agreeable. Its fruit is less abundant than that of the Platano Guineo, and it requires longer time to become fully ripe. A fourth kind, which grows in the forest regions, I have never seen on the coast. It is the *Platano Altahuillaca*. It bears at most from twenty to twenty-five heads of fruit. The stem is more than two inches thick, and above an ell long. The color of the husk is light yellow, the enclosed substance is white, tough, and hard. In the raw state it is flavorless, but when roasted in hot ashes, or cooked with meat, it makes a fine dish.

When the platanos of the uppermost row, that is, those which form the base of the conical-formed reflex cluster, begin to turn yellow, or, as the natives say, *pintar*, the whole is cut off, and hung up in an airy, shady situation, usually in an apartment of the Rancho, or hut, where it may quickly ripen. The largest fruits are cut off as soon as they are yellow and soft, and so the cutting goes on gradually up to the top, for they ripen so unequally that those at the base show symptoms of decay while those at the top are still hard and green. As soon as the *cabeza*, or cluster of fruit, is cut, the whole branch is immediately lopped off, in order to facilitate the shooting of the fresh sprouts. Each branch bears only one *cabeza*, and eight or ten months are *the period usually* required for its complete development.

The platanos belongs indisputably to the most useful class of fruit trees, especially in regions where they can be cultivated extensively, for then they may very adequately supply the place of bread. In northern Peru and Guayaquil, the platano fruit is prepared for food in a variety of ways.

Pine-apples (*Ananas*) are not much cultivated on the coast of Peru. The market of Lima was formerly entirely supplied with this fruit from the Montaña de Vitoc. When brought from thence they used to be cut before they were ripe, and packed on the backs of asses. The journey is of sixteen or twenty days' duration, and the road lies across two of the Cordilleras. After being several days in the cold snowy region of the Puna, the fruit came to Lima in a very indifferent state; but since the communication by steam navigation with Guayaquil, pine-apples are brought from the latter place in large quantities. They are large, succulent, and very sweet.

The Granadilla (*Passiflora quadrangularis*) is about the size of an apple, but rather oblong. The skin is reddish-yellow, hard, and rather thick. The edible part is grey and gelatinous, and it contains numerous dark-colored seeds. The fruit is very agreeable, and in taste resembles the gooseberry, and is very cooling. The Granadilla is a shrub or bush, and it twines round the trunks of trees, or climbs up the walls of the Ranchos. It is less abundant on the coast than in the adjacent valleys.

The Tunas are fruits of different species of Cactus. The husk, which is covered with sharp prickles, is green, yellow, or red in color, and is easily separated from the pulp of the fruit. When being plucked, the tunas are rubbed with straw to remove the prickles, which, however, is not always completely accomplished. It is therefore necessary to be cautious in handling the husks, for the small prickles cause inflammation when they get into the fingers.

The Pacay is the fruit of a tree of rather large size (*Prosopis dulcis*, Humb.), with a rather low and broad top. It consists of a pod from twenty to twenty-four inches long, enclosing black seeds, which are embedded in a white, soft, flaky substance. This flaky part is as white as snow, and is the only eatable part

of the fruit. It tastes sweet, and, to my palate at least, it is very unpleasant; however, the Limeños on the coast and the monkeys in the woods are very fond of the pacay.

The Lucuma is produced only in the southern provinces of the coast of Peru, and is chiefly imported from the north of Chile. The fruit is round. The grey-brown husk encloses a fibrous, dry, yellow-colored fruit with its kernel.

The Guayava (*Psidium pomiferum*) grows on a low shrub, chiefly in the valleys of the coast, and on the eastern declivity of the Andes. It is of the form and size of a small apple. The rind is bright, yellow, and thin. The pulp is either white or red, and is full of litttle egg-shaped granulations. Its flavor is pleasant, but not remarkably fine. In Lima it is not a favorite, for numerous insects lay their eggs in it, and, when the fruit is ripe, larvæ are found in it.

The Pepino (a *cucurbitacea*) is grown in great abundance in the fields. The plant is only a foot and a half high, and it creeps on the ground. The fruit is from four to five inches long, cylindrical, and at both ends somewhat pointed. The husk is of a yellowish green color, with long rose-colored stripes. The pulp or edible part is solid, juicy, and well-flavored. The kernel lies in the middle, in a long-shaped furrow. By the natives the pepino is, and not altogether unreasonably, believed to be injurious. They maintain that this fruit is too cold in the stomach, and that a glass of brandy is necessary to counteract its injurious properties. This much is certain, that the pepinos are very indigestible, and that eating them frequently, or at improper times, brings on fits of illness.

The Mani, or Earth Almond (*Arachis hypogœa*), is produced in the northern provinces. The plant is from a foot and a half to two feet long, and very leafy. The kernels have a grey, shrivelled husk: they are white, and contain much oil. When roasted and crushed, they are eaten with sugar.

The Capulies (*Prunus capulin*, Ser.) grows in the open fields. In towns it is planted in gardens or in pots. The fruit is a little bigger than a cherry. It is of a deep yellow color, and has an acid taste. The capulies are not frequently eaten. On account of their very pleasant odor, they are used in making Pucheros de

flores, or with other odoriferous flowers, they are besprinkled with *agua rica*, and laid in drawers to perfume linen. The ladies of Lima wear them in their bosoms. The same uses are made of the Palillos (*Camponanesia lineatifolia*, R.), which grow on trees from twenty to thirty feet high. The bright yellow fruit is as large as a moderately-sized apple. The palillo emits an exceedingly agreeable scent, and is one of the ingredients used in making the perfumed water called *mistura*. When rubbed between the fingers, the leaves smell like those of the myrtle; but they have an acid and a stringent taste.

The coast of Peru is poorly supplied with Palm-trees, either wild or cultivated. The Cocoa Palm is grown only in a few of the northern provinces, and the Date Palm chiefly about Yca. With a very little care, these trees would thrive excellently in all the oases of the coast of Peru.

CHAPTER VIII.

Robbers on the coast of Peru—The Bandit Leaders Leon and Rayo—The Corps of Montoneros—Watering Places near Lima—Surco, Atte and Lurin—Pacchacamac—Ruins of the Temple of the Sun—Difficulties of Travelling on the Coast of Peru—Sea Passage to Huacho—Indian Canoes—Ichthyological Collections—An old Spaniard's recollections of Alexander Von Humboldt—The Padre Requena—Huacho—Plundering of Burial Places—Huaura—Malaria—The Sugar Plantation at Luhmayo—Quipico—Ancient Peruvian Ruins—The Salinas, or Salt Pits—Gritalobos—Chancay—The Piques—Mode of extracting them—Valley of the Pasamayo—Extraordinary Atmospheric Mirrors—Piedras Gordas—Palo Seco.

ALL the inhabited parts of the coast of Peru, especially the districts adjacent to Lima and Truxillo, are infested by robbers, and travelling is thereby rendered extremely unsafe. These banditti are chiefly runaway slaves (simarrones, as they are called), free negroes, zambos, or mulattos. Occasionally they are joined by Indians, and these latter are always conspicuous for the cruelties they perpetrate. Now and then a white man enters upon this lawless course; and, in the year 1839, a native of North America, who had been a purser in a ship of war, was shot in Lima for highway robbery. These robbers are always well mounted, and their fleet-footed steeds usually enable them to elude pursuit. It is no unfrequent occurrence for slaves belonging to the plantations to mount their masters' finest horses, and after sunset, when their work is over, or on Sundays, when they have nothing to do, to sally forth on marauding expeditions.

Most of the highway robbers who infest the coast of Peru belong to an extensive and systematically-organized band, headed by formidable leaders, who maintain spies in the towns and villages, from whom they receive regular reports. They sometimes prowl about in parties of thirty or forty, in the vicinity of the capital, *and plunder every* traveller they encounter; but they are most

frequently in smaller detachments. If they meet with resistance they give no quarter; therefore, it is most prudent to submit to be plundered quietly, even when the parties attacked are stronger than the assailants, for the latter usually have confederates at no great distance, and can summon reinforcements in case of need. Any person who kills a robber in self-defence must ever afterwards be in fear for his own life: even in Lima the dagger of the assassin will reach him, and possibly at the moment when he thinks himself most safe.

Foreigners are more frequently waylaid than natives. Indeed, the rich and influential class of Peruvians are seldom subjected to these attacks,—a circumstance which may serve to explain why more stringent police regulations are not adopted.

The most unsafe roads are those leading to Callao, Chorillos, and Cavalleros. This last place is on the way to Cerro de Pasco, whither transports of money are frequently sent. A few weeks before my departure from Lima a band of thirty robbers, after a short skirmish with a feeble escort, made themselves masters of a remittance of 100,000 dollars, destined for the mine-workers of Pasco. The silver bars from Pasco are sent to Lima without any military guard, for they are suffered to pass unmolested, as the robbers find them heavy and cumbrous, and they cannot easily dispose of them. These depredations are committed close to the gates of Lima, and after having plundered a number of travellers, the robbers will very coolly ride into the city.

The country people from the Sierra, who travel with their asses to Lima, and who carry with them money to make purchases in the capital, are the constant prey of robbers, who, if they do not get money, maltreat or murder their victims in the most merciless way.* In July, 1842, I was proceeding from the mountains back to Lima, and, passing near the Puente de Surco, a bridge about a league and a half from Lima, my horse suddenly shied at something lying across the road. On alighting I found that it was the dead body of an Indian, who had been murdered, doubt-

* The Indians resort to very artful methods of hiding their money. They sometimes conceal it between the boards of the boxes in which their eggs *are packed, or stitch* it into the stuffing of their asses' saddles. They often *submit to be killed* rather than avow where their money is concealed.

less, by robbers. The skull was fractured in a shocking manner by stones. The body was still warm.

The zambo robbers are notorious for committing the most heartless cruelties. In June, 1842, one of them attacked the Indian who was conveying the mail to Huacho. "Shall I," said the robber, "kill you or put out your eyes?" "If I must choose," replied the Indian, "pray kill me at once." The barbarian immediately drew forth his dagger and stuck it into the eyes of the unfortunate victim, and then left him lying on the sand. In this state the poor Indian was found by a traveller, who conveyed him to a neighboring village. The following anecdote was related to me by an Indian, in whose dwelling I passed a night, at Chancay:—About half a league from the village he met a negro, who advanced towards him, with musket cocked, and commanded him to halt. My host drew out a large riding pistol, and said, "You may be thankful that this is not loaded or you would be a dead man." The negro laughing scornfully, rode up and seized the Indian, when the latter suddenly fired the pistol, and shot him dead.

When these Peruvian banditti are attacked by the military or the police, they defend themselves with desperate courage. If they can effect their escape they fly for concealment into the woods and thickets, which, if not too extensive, are surrounded and set on fire, so that the fugitives have no alternative but to surrender, or to perish in the flames.

Within the last few years, two negroes, named Escobar and Leon, were daring leaders of banditti. Leon, who was originally a slave, commenced his career of crime by the murder of his master. He eluded the pursuit of justice, became a highway robber, and for many years was the terror of the whole province of Lima. The police vainly endeavored to secure him. Leon knew the country so well, that he constantly evaded his pursuers. When the price of 2000 dollars was set upon his head, he boldly entered Lima every evening and slept in the city. At length placards were posted about, calling on Leon's comrades to kill him, and offering to any one who might deliver him up dead into the hands of the police the reward of 1000 dollars *and a pardon.* This measure had the desired result, and Leon

was strangled, whilst asleep, by a zambo, who was his godfather. The body was, during three days, exposed to public view in front of the cathedral.

Another celebrated bandit was the zambo, Jose Rayo. He took an active part in several of the political revolutions; and having, during those commotions, been serviceable to the president, he was raised to the rank of a lieutenant-colonel, and made chief of the country police, called the *Partida montada del campo*. This post he still fills, and he is admirably well adapted to it, as experience has rendered him thoroughly acquainted with banditti life, and he knows every hiding-place in the country round Lima. Nevertheless he could not catch the negro Leon, or possibly he would not seize him, for Leon was his godfather, a relationship which is held sacred throughout all classes in Peru. When Rayo speaks of the president and ministers he always styles them *sus mejores amigos* (his best friends). I fell in with him once, when travelling on the road to Chaclacayo, and rode in company with him as far as the Hacienda de Santa Clara. I found him exceedingly complaisant and courteous in his manners; but his true zambo nature was not wholly concealed beneath the smooth surface.

Robbers, when captured and brought to Lima, undergo a very summary trial, and are then sentenced to be shot. The culprits have the privilege of choosing their place of execution, and they generally fix on the market-place. They are allowed the assistance of a priest for twelve hours prior to their death, and they are conducted from the chapel to the place of execution, carrying a bench, on which they sit to undergo the punishment. Four soldiers fire at the distance of three paces from the culprit; two aiming at his head, and two at his breast. On one of these occasions a singular instance of presence of mind and dexterity occurred a few years ago in Lima. A very daring zambo, convicted of highway robbery, was sentenced to death. He made choice of the Plaza de la Inquisicion as the scene of his execution. It was market time, and the square was crowded with people. The culprit darted around him a rapid and penetrating glance, and then composedly seated himself on the bench. The soldiers according to custom levelled their muskets and

fired; but how great was the surprise, when the cloud of smoke dispersed, and it was discovered that the zambo had vanished. He had closely watched the movements of the soldiers, and when they pulled the triggers of their muskets, he stooped down, and the balls passed over his head. Then suddenly knocking down one of the guards who stood beside him, he rushed into the midst of the crowd, where some of his friends helped him to effect his escape.

In time of war a corps is raised, consisting chiefly of highway robbers and persons who, by various offences against the laws, have forfeited their freedom or their lives. This corps is called the Montoneros, and they are very important auxiliaries when the coast is the theatre of the war. The Montoneros, not being trained in military manœuvres, are not employed as regular cavalry, but only as outposts, scouts, despatch-bearers, &c. They are good skirmishers, and they harass the enemy by their unexpected movements; sometimes attacking in front and sometimes in the rear. They have no regular uniform, and their usual clothing consists of dirty white trousers and jacket, a poncho, and a broad-brimmed straw hat. Many of them are not even provided with shoes, and their spurs are fastened on their bare heels. Their arms consist of a short carbine and a sword. When the corps is strong, and is required for active service, it is placed under the command of a General of the Army. In 1838, General Miller, now British Consul at the Sandwich Islands, commanded a corps of 1000 Montoneros, who were in the service of Santa Cruz. They are held in the strictest discipline by their commanders, who punish theft with death. There is, however, one sort of robbery which they are suffered to commit with impunity, viz, horse-stealing. The horses obtained in this way are used for mounting the cavalry; and detachments of Montoneros are sent to the plantations to collect horses. They are likewise taken from travellers, and from the stables in the capital; but sometimes, after the close of the campaign, the animals are returned to their owners. When the war is ended the Montoneros are disbanded, and most of them return to their occupation as highway robbers.

In all campaigns the Montoneros are sent forward, by one or *two days' march in* advance of the main army, either in small

or large detachments. When they enter a village they experience no difficulty in obtaining quarters and provisions, for the inhabitants are not disposed to refuse anything that such visitors may demand. A troop of Montoneros is a picturesque, but, at the same time, a very fearful sight. Their black, yellow, and olive-colored faces, seared by scars, and expressive of every evil passion and savage feeling; their motley and tattered garments; their weary and ill-saddled horses; their short firelocks and long swords;—present altogether a most wild and disorderly aspect. The traveller, who suddenly encounters such a band, may consider himself exceedingly lucky if he escapes with only the loss of his horse.

A universal panic pervades the city of Lima whenever a detachment of Montoneros enters within the gates. On every side are heard cries of "*Cierra puertas!*" (close the doors!) "*Los Montoneros!*" Every person passing along the streets runs into the first house he comes to, and closes the door after him. In a few moments the streets are cleared, and no sound is heard but the galloping of the Montoneros' horses.

Within the distance of a few leagues from Lima there are several pretty villages, to which the wealthier class of the inhabitants of the capital resort in the summer seasons, for sea-bathing. The nearest, situated about three-quarters of a league from Lima, is Magdalena, where the Viceroy of Peru formerly had a beautiful summer residence. Miraflores, about midway between Lima and Chorillos, is a small village containing a plaza and some neatly-built houses. Though the heat is greater here than in the capital, yet the air is purer, and Miraflores may be regarded as the healthiest spot in the neighborhood of Lima. The sultry atmosphere is refreshed by the sea breezes. Surrounded by verdant though not luxuriant vegetation, and sufficiently distant from the marshes, Miraflores appears to combine within itself all that can be wished for in a summer residence. For asthmatic patients the air is particularly favorable. An old Spaniard of my acquaintance, who was engaged during the day in business in Lima, used to go every night to sleep at Miraflores: he assured me that if he slept a night in the capital he suffered a severe attack of asthma.

Chorillos is a poor, ill-looking village. The streets are dirty and crooked, and the houses are mere ranchos. It is built close to the sea, on a steep sandy beach; but, though anything but a pleasant place, Chorillos is the favorite resort of the wealthy Limayan families. Not a tree is visible in the neighborhood of the village, and the unshaded rays of the sun are reflected with twofold power from the hot sand. A broad, steep road leads down to the bathing-place on the sea-beach, which is rough and shingly. A row of small huts, covered with matting, serve as dressing-rooms. Both ladies and gentlemen use bathing dresses, which are very neatly made of a kind of blue cloth. The ladies are accompanied by guides (*bañaderos*). These are Indians, who dwell in the village. In winter they employ themselves in fishing, and in summer they live by what they get from the visitors who resort to Chorillos. They are a good-looking, hardy race of people.

The time for bathing is early in the morning. The interval between breakfast and dinner is devoted to swinging in the hammock, either in the sala or in the corridor. The afternoon and evening are spent on the promenade, and the later hours of the night at the gaming-table. The routine of the day's occupations and amusements is much the same as in most of the watering-places of Europe, excepting that, in the latter, the hammock is suspended by the chair in the reading-room and coffee-house, or the bench on the promenade. The sultry nights in Chorillos are rendered doubly unpleasant by the swarms of vermin which infest the houses. Fleas, bugs, mosquitoes and sancudos, combine to banish rest from the couch of even the soundest sleeper.

Surco is situated about half a league from Chorillos, and further into the interior of the country. It is a poor but pleasant village, surrounded by tropical trees and luxuriant vegetation. The climate is not so hot as that of Lima or Chorillos. Surco is a very pretty spot, though seldom resorted to by the inhabitants of the capital; because it boasts neither baths nor gaming-tables.

Two leagues eastward of Lima, in the direction of the mountains, is the village El Ate. It lies in a fertile valley, and en-

joys a pure and equal temperature. It is much resorted to by invalids suffering from pulmonary disorders, which, if not cured, are at least relieved by the pure air.

Lurin is situated five leagues south from the capital, and a quarter of a league from the Rio de Lurin, which intersects the Quebrada of Huarochirin. Fine gardens, and well-cultivated lands, impart beauty to the surrounding scenery. At Michaelmas Lurin is visited by many of the inhabitants of the capital, St. Michael being the patron saint of the place. The village stands about a thousand paces from the margin of the sea-shore, which is two miles distant from the rocky islands of Tarallones, Santo Domingo, and Pacchacamac. Prior to the Spanish conquest, the valley of Lurin was one of the most populous parts of the coast of Peru. The whole of the broad valley was then called Pacchacamac, because near the sea-shore and northward of the river, there was a temple sacred to the "Creator of the Earth."* Pacchacamac was the greatest deity of the Yuncas, who did not worship the sun until after their subjugation by the Incas. The temple of Pacchacamac was then dedicated to the sun by the Incas, who destroyed the idols which the Yuncas had worshipped, and appointed to the service of the temple a certain number of virgins of royal descent. In the year 1534, Pizarro invaded the village of Lurin: his troops destroyed the temple, and the Virgins of the Sun were dishonored and murdered.

The ruins of the temple of Pacchacamac are among the most interesting objects on the coast of Peru. They are situated on a hill about 558 feet high. The summit of the hill is overlaid with a solid mass of brick-work about thirty feet in height. On this artificial ridge stood the temple, enclosed by high walls, rising in the form of an amphitheatre. It is now a mass of ruins; all that remains of it being some niches, the walls of which present faint traces of red and yellow painting. At the foot, and on the sides of the hill, are scattered ruins which were formerly the

* The word Pacchacamac signifies *He who created the world out of nothing. It is* compounded of *Paccha*, the earth, and *camac*, the participle *present of caman*, to produce something from nothing.

walls of habitations. The whole was encircled by a wall eight feet in breadth, and it was probably of considerable height, for some of the parts now standing are twelve feet high, though the average height does not exceed three or four feet. The mania of digging for treasures every year makes encroachments on these vestiges of a bygone age, whose monuments are well deserving of more careful preservation.

Travelling on the coast of Peru is difficult and tedious. The roads lead through plains of sand, where often not a trace of vegetation is to be seen, nor a drop of water to be found for twenty or thirty miles. It is found desirable to take all possible advantage of the night, in order to escape the scorching rays of a tropical sun; but when there is no moonlight, and above all, when clouds of mist obscure the directing stars, the traveller runs the risk of getting out of his course, and at daybreak, discovering his error, he may have to retrace his weary way. This extra fatigue may possibly disable his horse, so that the animal cannot proceed further. In such an emergency a traveller finds his life in jeopardy; for should he attempt to go forward on foot he may, in all probability, fall a sacrifice to fatigue and thirst. Numbers of beasts of burden sink every year under the difficulties of such a journey; and their bones serve to mark the direction of the road. Long journeys over these sand plains should be undertaken only with good and well-tried horses. For the most part the horses cannot stand hunger and thirst forty-eight hours without becoming so exhausted that the rider has the greatest difficulty in making them drag on; and if he is inconsiderate enough to force the animal to take a quicker pace, the horse lies down and dies. The mule, which more easily supports the difficulties of a severe journey on the sparest food, is, in Peru, the camel of the desert. Without mules, a long journey on most parts of the coast would be impracticable. The horse obeys the spur until he falls dead under the rider. Not so the mule: when too weary to journey onward he stands stock still, and neither whip nor spur will move him until he has rested. After that he will willingly proceed on his way. By this means the traveller has a criterion by which he can judge of the powers of his animal.

Excursions along the coast have been greatly facilitated by the

introduction of steam navigation, and travellers now eagerly avail themselves of that rapid and secure mode of conveyance. Even in sailing vessels voyages from south to north can be conveniently performed in consequence of the regularity of the tradewind.

During my residence in Lima, in the commencement of the year 1841, I visited the port of Huacho, situated to the north. A packet bound to Panama had permission to touch at Huacho, without casting anchor, as she had to convey political prisoners under sentence of transportation to Panama. I was one of five passengers who landed at Huacho, and among the number was the pastor of the town, that very original individual, "the Cura Requena." The passage, which is usually made in fourteen hours, lasted two days and a half. Off the port we fell in with a Peruvian sloop of war, which, on our sailing from Callao, had been sent to watch us, and to stop the prisoners in case they attempted to escape. Our captain lay to, and we stepped into a boat. Our movements were observed from the shore, where, for some days, a report had prevailed that Santa Cruz was coming with Corsairs, to make a descent. The inhabitants believed that our ship must belong to that expedition. They were the more confirmed in their notion, inasmuch as the appearance of a sloop of war, which had sailed about for some hours in the bay, could not otherwise be explained. Accordingly the alarm bell was rung. The custom-house officers and the coast guards, headed by the port captain, and followed by a crowd of people, came down to the shore, some armed with muskets and pistols, others with swords and cudgels, to repel the intended attack.

At the entrance to the port of Huacho the breakers are so dangerous that an ordinary-sized boat cannot put in. Landing is therefore effected in the small canoes of the Indians. When we approached the shore we made signals, and called loudly for canoes, but in vain. The dismayed Huachanos showed no inclination to assist their supposed enemies. Our captain, who was with us in the boat, said, that as a fresh wind from the shore was springing up he could wait no longer, and that he must take us with him to Panama. This very unpleasant piece of information prompted us to put into execution a plan which was suggested by despair. The tall, lank pastor, wrapped in the black ecclesi-

astical robe, called the *talar*, was placed at the prow, where he stood up, making signs of peace and friendship to the natives. This had the desired effect. The port captain had a good glass, with which he quickly recognized the marked features of the Cura, and several Indian boats were instantly despatched to convey us on shore. These Indian canoes consist of long narrow stumps of trees, hollowed longitudinally. On either side is nailed a *palo de balzas*, viz., a beam of a very porous kind of wood. One Indian sits forward, another more backward, each having a short wooden shovel-shaped oar, with which they strike the water right and left, and thus scull the boat onward. The passengers must crouch or kneel down in the middle, and dare not stir, for the least irregularity in the motion would upset the boat. We landed safely, and amused ourselves by referring to the mistake of the brave guardians of the coast. Horses were provided for us, and we rode to the town, which is situated at about half a league up the gently-rising coast.

My principal occupation, during a six weeks' residence on this part of the coast, which is very rich in fishes, was to augment my ichthyological collection, and to make myself well acquainted with the environs of Huacho. Every morning, at five o'clock, I rode down to the shore, and waited on the strand to see the boats returning with what had been caught, during the night, by the fishers, who readily descried me at a distance, and held up, in their boat, such strange inhabitants of the deep as had come into their possession. I succeeded in making out, from several hundred individual specimens, one hundred and twenty distinct species of sea and river fish. But an unlucky fate hovered over this fine collection. The fishes were all put into a cask with brandy, which, by neglect of the commissary of the port, was left on the Mole at Callao, for several months, in the burning heat of the sun: in consequence its contents were utterly destroyed. A second collection was prepared, and immediately shipped for Europe, and in the packing the greatest care was observed. Nevertheless it arrived, after a voyage of fifteen months, in a state quite useless. Thus the fruits of much labor and a considerable expense were entirely lost.

Huacho is a little village, which, since the war of Indepen-

dence, has received the title of "city." It has more than 5000 inhabitants, of whom four-fifths are Indians and the rest mestizes. Very few whites have settled here. Among them I met an old lame Spaniard, "Don Simon," who, at the beginning of the present century, accompanied the celebrated Alexander von Humboldt to the beds of salt situated a few miles to the south. In relating, with enthusiastic pleasure, his recollections of the youthful and indefatigable traveller, he told me that, some years ago, he had read through the book which Humboldt wrote on America, and he added, with great simplicity, "*pero, Señor, ahi he perdido los estribos.*"*

The natives employ themselves in fishing, agriculture, and the breeding of poultry. Most of the poultry brought to market in Lima comes from Huacho. Every Friday large caravan-like processions of Indian women repair to the capital with fowls, ducks, and turkeys. Fifteen or twenty are tied together by the feet, and make a sort of bunch; and two of such bunches are hung at the pommel of the saddle, so that one hangs down on either side of the horse. The chola† sits in the middle. Under this burthen the poor animal has to travel two days and a half. Only when the caravan halts does he enjoy the relief of being unsaddled and fed. Some of the Indians of Huacho work in the salt-pits. The women plait coarse straw hats, and a kind of mats called *petates*, which they carry to Lima for sale.

The Huachanos cannot be ranked among the best classes of the Indians. They are malicious, revengeful, and knavish. Their character has evidently deteriorated amidst the numerous revolutions which preceded the establishment of the Republic, and the frequent passage of troops through the town. The Padre Requena sketched to me a terrible picture of his *Indios brutos;* but truly, under the guidance of such a shepherd, it were unreasonable to expect the flock to be very good. This venerable Cura was a fair type of the Peruvian priesthood. He was pas-

* Literally—"But there, sir, I lost the stirrups." Meaning that he did not understand it. The Spanish phrase, *Perder los estribos*, signifies to get confused or embarrassed.

† *Chola is* the common designation for an Indian female. The masculine *is Cholo.*

sionately fond of hunting, and for the enjoyment of that recreation he kept a number of excellent horses, and several packs of hounds, particularly *galgos* (greyhounds), for some of which he paid 150 or 200 dollars. In the most shameless way he violated the ecclesiastical vow of celibacy, and he was usually surrounded by several of his own children, who called him *uncle*, addressing him by the appellation of *tio*, the term usually employed in Peru to express that sort of relationship. The Padre used to boast of his alleged friendship with Lord Cochrane, in which he affected to pride himself very greatly. He died in a few weeks after his return to Huacho. He refused so long to make his confession, that the Indians, uttering furious menaces, assembled in crowds about his house. Some even compelled a priest to go in to him, to represent the awful consequences of his obstinacy. On the approach of death, he declared that the thought which most occupied him was his separation from his hounds, and when his hands were becoming cold he called to his negro to fetch a pair of buckskin hunting gloves, and desired to have them drawn on.

In Peru the clergy have no fixed stipend. Their emoluments are derived from the fees and perquisites which their ecclesiastical functions bring in. For baptisms, marriages, and masses, fixed sums are established; but it is not so with burials, for which the priest receives a present proportional to the circumstances of the deceased. The interment of a poor person (*entierro baxo*) costs at least from eight to ten dollars, which sum is extorted from the survivors with the most unrelenting rigor. For the burial of a rich person (*entierro alto*) the sum of two hundred dollars is frequently paid. If a wealthy man should express in his will his desire for an *entierro baxo*, the priest sets this clause aside, and proceeds with the costly ceremonies, the payment for which is insured by the pious feelings of the family. Hence some of the richer *comunerias*, of which Huacho is one, yield to the priest annually from 12,000 to 14,000 dollars. When a priest dies, the clergy of the neighboring villages meet and bury him with great pomp, free of any payment except a good banquet.

A *rich Indian of* Huacho made a bargain with his countryman

that, on their paying him weekly a medio (the sixteenth part of a dollar), he would defray the expenses of their funerals. By this agreement he realized a considerable sum of money. The Cholos made it a condition that they should be buried in coffins, which is not common with the lower classes in Peru. The Indian complied with this condition. When a Cholo died, a coffin was sent to his residence. If too short, the corpse was bent and forced into it. The interment then took place according to the ritual of the Church. On the following night the Indian who had contracted for the burials repaired with a confidential servant to the churchyard, dug up the coffin, threw the body back into the grave, and carried off the coffin, with the *mortaja* (the funeral garment), which served for the next customer. The contractor made each coffin last as long as the boards would hold together. This system, at all events, secured the Cholos against the danger of being buried alive.

The churchyard of Huacho presents a revolting spectacle. A low wall surrounds a space of sandy ground, which is strewed with skulls, bones, fragments of burial clothes, and mutilated human bodies. The coffin plunderer, on replacing the corpse in the grave, merely throws some loose sand over it, and the consequence is that the remains of the dead frequently become the prey of dogs, foxes, and other carrion feeders. When the family of a deceased person can contribute nothing to defray the funeral expenses, the body is conveyed privately during the night to the churchyard. In the morning it is found half consumed.

The environs of Huacho abound in fine fruit gardens, and productive Indian farms. The climate is healthful, though very hot. The vicinity of the sea and the convenience of good bathing would render it an agreeable place of residence, were it not infested with vermin. Fleas propagate in the sand in almost incredible multitudes, especially in the neighborhood of the Indian huts, and any person entering them is in a moment covered with hundreds of those tormentors. Bugs, too, swarm in the lime walls; though that description of vermin is less numerous in Huacho than in some of the more northern towns.

In a fine valley, about two short leagues from Huacho, the *little town of Huaura* is situated on the bank of a river of the same

name. This Rio de Huaura is formed by the union of two rivers. The larger of the two rises in the Cordillera de Paria, and flows through the wild ravine of Chuichin: the smaller river, called the Rio Chico de Sayan, rises from a lake of considerable size in the Altos de Huaquimarci. Both unite below the village of Sayan. In the vicinity of Huaura the river forms several marshes, in which malaria is generated. In very few places have I seen the stratum of malaria so distinctly separated from the atmosphere as here. It lies at an average about two, or two and a half feet above the marsh, and is carried over it by strong atmospheric currents. It is distinguished by a peculiar kind of opalization, and on certain changes of light it exhibits a yellowish tint. This is particularly perceptible in the morning, on coming down from the high grounds. The marshy plain then appears overhung with a thick color-changing sheet of malaria. Malignant intermittent fever and diseases of the skin are frequent in Huaura. The town is thinly peopled; the number of inhabitants being not more than 2000.

A great sugar plantation, called El Ingenio, is situated at about a quarter of a league from Huaura. It formerly belonged to the Jesuits, but is now the property of a rich Lima family. The *trapiche*, or sugar-mill, is worked by a water-wheel, the first ever established in Peru, a circumstance of which the owner proudly boasts.

The valley which opens here is magnificent, and to ride through it easterly eleven leagues towards Sayan is one of the finest excursions which can be made in Peru. Over this beautiful district are scattered many rich plantations. The one next in importance to El Ingenio is Acaray, which, though not very large, is most carefully cultivated: another, called Huillcahuara, has a splendid building erected on it. In the middle of the valley is the extensive sugar plantation of Luhmayo. Near this place I saw, in a negro's hut, an ounce of immense size, which had been killed a few weeks previously. More than fifty Negroes and Indians had been engaged in subduing this ferocious animal, which was not killed until after a conflict of two days, in the course of which several negroes were dangerously wounded. This *gigantic specimen* measured, from the snout to the tip of the

tail, eight feet three inches; the tail itself measuring two feet eight inches.

At the sugar works of Luhmayo, notwithstanding the number of pipes, and other methods of supplying water, the cylinders are always worked by oxen, and are kept in motion day and night. I took a view of the works during the night, and the extraordinary picture I beheld will never be effaced from my memory. In the middle of the spacious building appropriated to the operations blazed a large fire, fed by the refuse of sugar canes. Around lay negroes, some asleep, and others muttering to each other in an under-tone. Here and there sat one perfectly silent, wrapped in his own reflections, and apparently brooding over some gloomy plan. The oxen paced slowly round the pole, which directed the movement of the cylinders; the animals alternately disappearing in the obscure background, and returning to the point where the glare of the fire, falling full upon them, lighted them up as if by the sudden effect of magic. Behind them stalked a tall black figure, driving them on with a rod made of brambles. Groups of children were busily employed in thrusting the full sugar canes between the cylinders; and after they were pressed, collecting together the sapless reeds, and piling them up in regular heaps.

Next morning the person who officiated as medical superintendant of the plantation, showed me all the arrangements of the establishment. He gave me an account of his cures and operations, and told me that he often found it necessary to amputate, because the slaves purposely injure their fingers and arms in the *Phalangeles* (machines) in order to disable themselves. The worthy Æsculapius had never in his life read a regular medical work. He had originally been an overseer of slaves, and had afterwards turned doctor. He informed me that some time before I saw him, ninety negroes, his patients, had died of small-pox in the space of nine months, whereby the owner of the plantation had lost 45,000 dollars. The hospital was clean and well fitted up, but over-crowded with sick. Most of them died from intermitting fever, and from dropsy and rheumatism which followed it. Not a few of the male negroes suffer from a peculiar *kind of cutaneous* disease, which shows itself by large pustules

on the arms and breast. After suppuration they dry and fall off, but leave indelible spots, which, on a black skin, are of a whitish color; on a brown skin, olive-green, and on a white skin, black. I never saw the disease in any other part of the country except in this valley. Negroes and persons of mixed blood are more subject to it than the whites.

The two plantations on the east side of the valley are Chambara and Quipico. The latter is celebrated for the fine sugar it produces, and is also well known on account of the original character of its late proprietor, Castilla. When I rode into the court, I was in a moment surrounded by about fifty fine greyhounds, and from every side others came springing forward. This was but a remnant of Castilla's collection. He was passionately devoted to hunting, and generally kept from 200 to 300 greyhounds, with which he rode out daily. A bell was rung at certain hours to collect the light-footed tribe to their meals. A gallows was erected in the court, where the intractable underwent capital punishment as a warning to the rest. One day when Castilla went out to hunt, he was joined in the chase by an Indian, who brought with him a common mongrel. This animal outstripped some of the greyhounds in speed, and quickly overtook the deer. Castilla immediately bought the dog, for which he gave the immense price of 350 dollars. A few days after he rode out to hunt with his best greyhounds, together with the newly-purchased dog. The pack being let loose, all the dogs set off in full chase, but the mongrel remained quietly beside the horses. On returning to the plantation, he was hung up on the gallows as a warning example.

To the north of Huacho, the *Pampa del medio mundo*, a sand plain, seven leagues long, stretches out to the village of Supe. At short successive distances farther to the north are the villages of *Baranca*, *Pativilca* (or rather Pati Huillca), and *la Fortaleza*. Then there intervenes a vast waste, which extends nearly to Huarmay. Between that village and the Port of Casma there is a similar long plain of sand. Thus do wastes, and fruitful valleys, alternate along the whole coast until near Tumbez, on the frontiers of the Republic of the Ecuador.

The whole district is rich in memorable monuments of the

time of the Incas. The most important are the remains of the palace of King Chimu Cancha, not far from the harbor of Huanchaco, and the ruins of Paramanca, near la Fortaleza. Doctor Unanue* is of opinion that the latter edifice was built to commemorate the peace between King Chimu Cancha and his conqueror, Capac Yupanqui; and that of two other buildings, one (the larger), situated towards the east, marks the dominions of the powerful Inca Pachacutec, and the other (the smaller), towards the west, indicates the territory of the conquered Chimu. This supposition is, in my opinion, quite erroneous. Independently of the plainly-recognizable character of those ruins, the construction of which shows them to have been fortifications, their situation bears evidence against the inference of Unanue. Supposing the larger building to have indicated the position of the Inca Empire, it ought to have been situated to the south, and the smaller building would have been to the north. The only passable road along the coast led between these two fortified hills; and by them the road on that side to the Kingdom of Chimu could be cut off. The Incas well knew, from experience, that the subdued populations, usually after a longer or a shorter time, again revolted, and endeavored to shake off their yoke, and therefore they were on their guard against such an occurrence. Capac Yupanqui must have greatly mistrusted an enemy so formidable as Chimu Cancha, who had only yielded after the most obstinate resistance, and it is no slight proof of this that Paramanca† was built as a fortress to hold the subjugated nations in check. It was not, however, built as a monument of victory, for such monuments were always erected in Cozco, the capital, and never on the field of battle. Etymology affords no solution of this question. Some write Paramonga, others Paramanca. I regard the latter as the most correct. Garcilaso de la Vega

* Nuevo dia del Peru. 1824.

† According to some ancient authors Paramanca was built by King Chimu as a frontier fortress against the neighboring nations. There is some foundation for this view of the subject, as Chimu Cancha had, long before he was attacked by Capac Yupanqui, carried on war most fiercely *with Cuyz* Mancu, King of Pacchacama, and Chuquiz Mancu, King of Ru*nahuanac (the present* Lunahuana).

calls the valley Parmunca. In the Quichua dialect *Paramanca** signifies a pot for rain. It is therefore possible that the name may indicate an allusion to heavy torrents of rain, which, though now unusual on this particular part of the coast, may have occurred in this basin-like valley after a great earthquake.

Five leagues to the south of Huacho are the extensive *Salinas*, or salt pits, which supply Peru and Chile with excellent salt. They spread from the sea coast to the distance of half a league eastward, and present a most extraordinary aspect. On approaching them the traveller might fancy he beholds a field of glaciers, on which the sun's rays produce wonderful effects of variegated color.

This salt is the produce of a natural evaporation of the sea water, which trickles through the porous stones of the coast, and fills every intervening hollow. The whole space is parcelled into divisions, called fields, from which, according to a definite regulation, square masses, weighing each one hundred pounds, are cut. In a few days the holes are again filled up with sea water, which, in the space of twelve to sixteen, or sometimes twenty to twenty-four months, being evaporated by the sun, leaves a precipitate completely filling up the square holes. The government has farmed the salinas to a private individual in Huacho, who keeps on the spot an overseer with the necessary number of laborers. This establishment is an inexhaustible source of wealth, and it can only be destroyed by a violent earthquake. In the bay on which the salinas border there is very convenient and secure anchoring ground, where coasters are constantly lying, ready to receive the salt, and convey it to any Peruvian or Chilean port. Most of the laborers employed in the salinas suffer from diseases of the skin and rheumatism. Water and provisions have to be brought from Huacho. The Indians, when they come from the mountains to convey salt, never take their llamas to the salinas. They go straight to Huacho, where the animals are loaded at the great depôts. Each llama carries the weight of one hundred pounds, which, however, is not, like ordinary burthens, laid on the bare back of the animal—beneath it is placed a layer of thick woollen cloth, called a *jerga*.

* *Para* (rain) *Manca* (pot).

The road southward from the Salinas runs, for the distance of nine leagues, through deep sand, chiefly along the sea-coast, and is bounded on the east by the *Lomas de Lachay*. Here flocks of strand snipes and flamingoes fly constantly before the traveller, as if to direct his course. In the *pescadores* (fishermen's huts), five leagues from the Salinas, brackish water and broiled fish may be obtained, and sometimes even clover, which is brought hither, from the distance of several miles, to feed the hungry horses. From the pescadores the road crosses steep sand-hills, which rise from three to four hundred feet high, and fall with a declivity of more than sixty degrees towards the sea. The road leads along the side of these hills, and, where the ground is not firm, it is exceedingly dangerous. On a false step of the horse the ground yields beneath his hoof, and rolls down the declivity; but by due care the rider can easily recover a solid footing. There is on one of these hills a very large stone, which at a certain distance presents in color and form a deceptious similarity to an enormous-sized seal. Almost perpendicularly under it is a small bay, inhabited by a multitude of seals. The dull crashing sound made by the breakers on the shore, mingling with the howling of these animals, makes a gloomy impression on the traveller who is passing along the height above them, and creates a sort of shuddering sensation. The natives call this place and its sounds the *Grita Lobos* (the Sea-dog's Howl). From this hilly ground the road descends into the fruitful valley of the *Pasamayo*, which contains two villages and eighteen plantations.

Chancay, the principal town in this valley, is the residence of a sub-prefect. It is a league and a half from the river, and a short league from the sea, where there is an inconsiderable and not very safe port, which can only be entered by small vessels. The number of inhabitants is about 1200, chiefly Indians and Mulattos. Excellent fruits and vegetables, good beef, mutton, and poultry, and well-flavored fish, are found here in abundance. The houses are all of the poorest structure, and are sparingly and rudely furnished. In the neighboring farms, some of which are large, as Torreblanco, Pasamayo, &c., maize is extensively cultivated for exportation and for food to the swine, which are very numerous. *In no other valley of* Peru are there so many earth-fleas, or *piques*,

as they are called, particularly about the plantations. The *pique* is a small, white insect, which lives in sand, but fastens as a parasite on man and beast, more particularly on swine. It attacks man by penetrating the skin, for the most part under the toe-nails, where an egg is laid, from which a painful tumor is afterwards formed. Should this be neglected, the brood is developed, and penetrates further into the flesh. Then follow violent inflammations and imposthumes, which sometimes assume so serious a character that the amputation of the foot becomes necessary. While the *pique* is penetrating there is no sensation of its presence; it is first felt on the development of the egg, and then it is still easy to remove the bag which contains it, and the mother with it. The Negresses accomplish this with great dexterity. They make an aperture in the skin by scratching it with a needle, and then they draw the bag out. Should it burst, they take out the egg with the needle; but this is a very delicate operation. I have always been able to do it more speedily and more securely with the lancet. The hole is commonly of the size of a bean, and hot cigar ashes are put into it to destroy any eggs or larvæ which may remain. These insects do not always confine themselves to the feet; they sometimes attack the body and the face, and it is in general extremely difficult for the patient to discover how or where he became acquainted with such troublesome companions. I once had six tumors, caused by broods of *piques*, on my right foot, and I could not trace the annoyance to any other cause than having stopped for a few minutes, while my horse was being saddled, in the *corral*, or yard, of a plantation.

The road from Chancay to the Haciendas of Bisquira, Andahuasi, and the village of Sayan, extends in a northeasterly direction, through a dreary valley of sand, between rows of sterile hillocks of the most singular forms. I had once to travel along twelve leagues of this wearisome road, under the most oppressive heat of the sun. The mules were quite overcome, and when we reached the *Cuesta de los ahorcados* (the hill of the hanged) they would not move another step. We had to descend and give them a long rest. We stretched ourselves under the bellies of the animals, the only shade we could get in this treeless waste.

At last, after a very difficult journey, during which we lost ourselves in a marsh in the neighborhood of Bisquira, we arrived about midnight at Andahuasi. On this road, only two leagues from Chancay, near the Hacienda of Chancayllo, are situated the Colcas, most remarkable subterraneous structures, of the time of the Incas. According to tradition, they were built by the Yuncas, during the campaign of Capac Yupanqui against Chimu Cancha, as provision magazines for the numerous army, more than 120,000 strong.

At the mouth of the Pasamayo, on the north bank, there are some salinas, which, however, are far more inconsiderable than those of Huacho.

The first time I went from Huacho to Lima, I wished to pass over the whole road, twenty-eight leagues, in one uninterrupted ride; accordingly I left Huacho at two o'clock, P. M., in order that I might cross the great sand-flats during the night. A negro who knew the road accompanied me. We passed through Chancay at midnight. Some muleteers, lying before a hut, called to us, and warned us to stop, as the river had swelled very much. Nevertheless we proceeded onward, and by one o'clock we reached the Pasamayo, which, in consequence of the heavy rains from the mountains, had overflowed its banks. Several travellers had stretched themselves on the ground to wait for the morning light, and in the hope that the flood would by that time subside. No Chimbadores* were to be had. My negro guide looked at the water with dismay, and declared that he had never before witnessed so furious a swell. However, we had no time to lose, and I resolved to attempt the passage of the river. Trusting to my well tried horse, which had already carried me safely through many difficult coasting journeys, I cautiously rode into the river, which became deeper at every step. The overwhelming force of the stream was felt by my horse; and he presently lost his footing, though he still continued to struggle vigorously against the force of the current. At this juncture, some passing clouds obscured the moon, and I lost sight of a group of trees which, before leaving the opposite bank, I fixed my eye upon as a guiding

* *Guides, who conduct* travellers across rivers, being well acquainted *with the fords.* They are also called Vadeadores.

beacon. Quite powerless, my horse and I were carried away by the stream, and driven against a rock in the middle of the river. I now heard the anxious outcries of my negro and the travellers on the bank, whilst the waves rose over my head. With a convulsive effort I pulled the bridle, and the horse then turning completely round, once more gained his solid footing. I then gave him the spur, and the courageous animal dashing again into the midst of the current, swam with me to the bank. I rode forward with my negro in search of a better fording-place, and after several fruitless attempts, we at length found one, and we crossed the river safely. The other travellers did not venture to follow our example, but called out begging us not to leave them behind. I sent the negro back on my horse to bring them over; and the noble animal went backward and forward no less than seven times without making one false step. After all this exertion, he bore me with unflagging spirit into Lima, where we arrived at noon on the following day.

From the Pasamayo, the road runs for the space of two leagues tolerably level, and for the most part amidst plantations. Then succeed steep sandy hills, for the distance of about four leagues. The roads are very wearisome both to horse and rider, especially in the declivities towards the plains, where the horse is frequently over his knees in sand. In those parts there are also some extraordinary atmospheric mirrors, in which we beheld ourselves in reflection, riding over our own heads, and our figures magnified to gigantic proportions. Six leagues from Chancay, there are two wretched huts, forming the tambo, or inn, in which travellers obtain refreshment. From thence the road runs through a stony tract, partially strewn with large masses of rock, called the *Piedras gordas*, and leading to the marshes which surround the Copacahuana plantations. Two leagues further on is the river Chillon, which, like the Pasamayo, may generally be easily forded, but which swells furiously during heavy falls of rain. At a short distance behind the river, the road, called the Camino de Valles, joins that leading to Cerro de Pasco. About a league from Lima there is a place called *Palo seco*, which, like *Piedras gordas*, is a celebrated haunt of robbers. The traveller has reason to congratulate himself if he passes these two places without an attack.

CHAPTER IX.

The Coast southward of Lima—Chilca—Curious Cigar cases made there—Yauyos—Pisco—Journey to Yca—A night on the Sand Plains—Fatal Catastrophe in the year 1823—Vine Plantations at Yca—Brandy and Wine—Don Domingo Elias—Vessels for transporting Brandy (Botijas and odres)—Cruel mode of skinning Goats—Negro Carnival—Peculiar species of Guinea Pig—The Salamanqueja—Cotton Plantations—Quebrada of Huaitara—Sangallan—Guano—Retrospect of the Peruvian Coast—Rivers—Medanos—Winds—Change of Seasons—the Garuas—The Lomas—Mammalia—Birds—Amphibia.

The coast, southward of Lima, is similar in aspect, climate, and character, to those parts north of the city which have just been described. Fruitful valleys, villages, and plantations, commodious sea-ports, and vast sandy wastes, alternate one with the other. Heat, sometimes almost insupportable, is succeeded by chilly and unhealthy mists; whilst here and there the scattered monuments of the wealth and greatness of bygone ages present a remarkable and painful contrast to present poverty and misery.

Proceeding southward of Lima by way of Lurin, we arrive at Chilca, a wretched village situated on a soil which affords nothing to supply the wants of human existence. It appears an incomprehensible mystery that man should have fixed his abode on a spot where Nature has granted nothing for his nourishment, not even a drop of pure water; whilst at the distance of a few miles, luxuriant valleys offer, spontaneously, those products which the most laborious toil must fail to extort from the ungrateful soil of Chilca. The hope of wealth from commercial speculation or mining industry has peopled many inhospitable shores, and has raised populous towns on barren deserts; but at Chilca there are no such stimuli of interests. Nevertheless, they may possibly *have existed in former* ages, for the numerous ruins scattered

around the village tend to confirm the opinion that the population was very extensive under the government of the Incas. The force of custom and of local attachment which frequently chains man to the spot where his progenitors have lived happily, is all that can bind the natives of Chilca to their miserable dwelling-place. In few villages, as in Chilca, have the Indians for more than 300 years so carefully avoided mixing with people of other races. They employ themselves in plaiting straw for hats and cigar-cases. The latter they make in a singularly beautiful style with white and colored straw, which they plait into various figures and patterns—sometimes into names, and even lines of poetry. Some of these cigar-cases sell for upwards of a hundred dollars. Fishing is a less profitable occupation to the people of Chilca, or, as they are called in the country, the Chilqueños; for, owing to the great distance, only certain kinds of fish can be sent to the Lima market. Near the village there is a bed of very strong red-colored salt, which is exported to the mountains, but which sells at a lower price than the salt of Huacho.

Five leagues south of Chilca, on the river of the same name, lies the village called Cañete, which is the residence of a Subprefect. The very interesting province of Yauyos extends from this village in an easterly direction towards the Cordilleras. The inhabitants of this province are distinguishable by their faces and figures, and also by their manners and language, from the Indians of the coast and the mountains. In stature they are small. They have expanded foreheads, animated eyes, prominent cheek-bones, and wide mouths. Their limbs are slender, and their skin is of a swarthy brown. Their dialect, the Cauqui, contains many radical words of the Quichua language. After this nation was subjugated by the Incas their language was so intermixed with others, that it is now very difficult to trace out its origin. It appears to be totally different from the Chinchaysuyo language.

Some very considerable sugar plantations, and several villages, lie between Cañete and Pisco. Among the villages, Lunahuana and Chincha (upper and lower) are celebrated for their great fertility. Two rivers, at the distance of five leagues from each

other, flow in a parallel direction between Chincha and Pisco, and to their waters the valleys are indebted for their rich vegetation. On account of their width these rivers can only be passed with the assistance of Chimbadores, and many travellers annually perish in their incautious attempts to ford them. The little town of Pisco is on the left bank of the south river, and half a league from it there is a secure harbor with good anchoring ground. This town has acquired some importance by the exportation of brandy; and it has recently become more active and populous owing to the near vicinity of the Guano islands. The custom-house and the port captain's office are on the shore, where there is also a large building erected by Don Domingo Elias, for a brandy depôt. The little town of Pisco has suffered much from the plundering attacks of European pirates, from earthquakes, and more recently from the War of Independence. Several parts of it have been rebuilt. Within the few last years much has been done in the way of improving and ornamenting it. A broad trench has been dug round the town, serving the purpose of drainage, and thereby greatly contributing to preserve the health of the place. Pisco is merely the key to the large interior town of Yca, which is fourteen leagues distant. I visited it in the year 1842. The steamer conveyed me in eighteen hours from Callao to Pisco, where I hired horses and a guide. He was a Catalonian, who had frequently travelled to Yca.

At three o'clock, P. M., we left Pisco. At first the road passed over very hard ground, then through deep sand, which continued till we got to Yca. Notwithstanding the heat, which in the month of February is insupportable, I was wrapped up in my woollen poncho. Experience had taught me that in the hotter districts the change of temperature which takes place at night, and causes fever, is least injurious when the traveller is protected in warm clothing. My Catalonian guide, who, with his arms covered merely by his shirt sleeves, nevertheless suffered greatly from the heat, could not comprehend why I had chosen such a dress. When I informed him that eleven days before I had, in the same clothing, passed a night on the Cordilleras, in the midst of snow, he shook his head in token of incredulity. Whilst the bell rang for evening prayers we rode into the Huilla Curin Plantation,

which is surrounded by a charming grove of palm trees. We stopped for a few moments to gather some excellent figs. About midnight a heavy fog spread over the plain, and veiled from our sight a cross on the south, which had hitherto served to keep us in the right direction. We, however, advanced about a league farther. The Catalonian then often alighted to smell the sand, in order to ascertain whether we were taking the proper course. This is a very good practical method; for in deserts through which caravans frequently pass, the dung of the beasts of burthen mixed with the sand affords a sure indication of the track. When we had got about three quarters of a league farther on, we came close against a rock, which my guide—in whose acquaintance with the locality I had the most unbounded confidence—declared was quite unknown to him. There was therefore no doubt that we had got out of the right course. I lighted a cigar, and on examining, by its feeble light, my pocket compass, I discovered that instead of keeping to the south-east we had diverged to the west. As there was now no hope that the fog would clear away before day-break, we rolled ourselves in the warm sand, to await the coming morning.

I afterwards learned that in this very spot numerous travellers had lost their way, and had perished of thirst. In the year 1823, a ship stranded on this coast, with three hundred and twenty dragoons on board, under the command of Colonel Lavalle. The soldiers succeeded in getting ashore, but thirty-six hours afterwards they were lost in this sandy desert. When intelligence of the shipwreck reached Pisco, a cavalry regiment was despatched to search for the sufferers, and to supply them with provisions and water; but when they were found it was discovered that one hundred and sixteen men had died from fatigue and thirst, and a few days after fifty more perished from exhaustion. It is generally supposed that a healthy man can live four or five days unsupplied with food and drink. In the temperate climate of Europe, and with bodily rest, this, perhaps, may be the case; but in the burning wastes of Peru to be deprived of nourishment for only forty-eight hours, and at the same time to wander about in deep sand, would be followed by certain death. Severe thirst is the *most horrible of torments*, especially when the body is surrounded

by a medium altogether of an arid nature. At sea it can be much longer endured than on a surface of sand.

When the grey dawn of morning appeared we again mounted our horses, and rode by my compass in the direction of E.S.E. After riding a few leagues, we turned an acute angle, which brought us into the main road, and we arrived that forenoon in Yca.

On my return I so arranged my journey as to pass the night in Huilla Curin, where the horses were supplied with forage, consisting of the shoots and leaves of the Mastick-tree (*schinus molle*).

Yca is a moderately large and very agreeably situated town. Like most of the larger towns on the coast it is peopled with inhabitants of all colors, particularly Mestizos. It is the residence of a sub-prefect and many rich planters. Scarcely anything but the vine is cultivated in the Haciendas of the environs; and this branch of husbandry contributes greatly to enrich the province. It is astonishing to see with what facility the vine thrives in a soil apparently so unfruitful. The young shoots are stuck into the sand almost half a foot deep, then tied up and left to themselves. They quickly take root and shoot forth leaves. Whilst the surrounding country bears the appearance of a desert, the vineyards of Yca are clothed in delightful verdure. The grapes are of superior quality, very succulent and sweet. The greater part are used for making brandy, which is extremely good and very well flavored. All Peru and a great part of Chile are supplied with this liquor from the Vale of Yca. The common brandy is called *Aguardiente de Pisco*, because it is shipped at that port. A kind of brandy of superior quality, and much dearer, made from Muscatel grapes, is called *Aguardiente de Italia*. It is distinguished by a very exquisite flavor. Very little wine is made at Yca. In some plantations they make a thick dark-brown kind, which is very sweet, and much liked by the Peruvians, though not very agreeable to a European palate. Only one planter, Don Domingo Elias,* the richest and most

* Elias is eminent not only as an extensive landowner and cultivator, but *as a statesman*. During the revolution of 1843 and 1844, he was called *upon to place himself* at the head of the government. He discharged the

speculative cultivator on the whole coast, makes wine in the European manner. It is very like the wine of Madeira and Teneriffe, only it is more fiery, and contains a more considerable quantity of alcohol. Specimens which have been sent to Europe have obtained the unqualified approbation of connoisseurs. The flavor is considerably improved by a long sea voyage.

The brandy, which is exported by sea, is put into large vessels made of clay, called *botijas*. In form they are like a pear, the broad ends being downwards. At the top there is a small aperture, which is hermetically closed with gypsum. The large *botija* when filled weighs six or seven arobas. Two are a load for a mule. To the pack-saddle, or *aparejo*, two baskets are fastened, in which the *botijas* are placed with the small ends downwards. These *botijas* were formerly also used for conveying the brandy across the mountains; but, in consequence of the dangerous, slippery roads, over which the mules often fell, many were broken. Still greater damage was sustained at the springs and wells on the coast, for the poor animals, after their long journeys through the sandy wastes, rushed, on perceiving water, in full flight to the springs. As it happens that there is often room for only five or six mules, and from seventy to eighty were often pressing forward, a great number of the *botijas* were unavoidably dashed to pieces in spite of all the caution the arrieros could exercise. The annual loss of brandy was immense, and to counteract this evil, bags of goatskin were introduced. These skins are now generally used for the conveyance of brandy across the mountains. The method of skinning the goats is the most horribly cruel that can be conceived. A negro hangs the living animal up by the horns, and makes a circular incision round his neck, which, however, goes no further than to the flesh. He then draws the skin from the body of the writhing animal, which utters the most frightful cries. When the skin is completely removed, and not till then, is the suffering animal killed. The negroes assert that the skin is most easily removed in this man-

duties of that high office with singular judgment and moderation. He and his lady are distinguished for their courteous and liberal hospitality; and many foreign visitors, like myself, look back with pleasure on the happiness they derived from the friendship of Don Domingo Elias

ner, and that the *odres** become thereby more durable. It is to be hoped that humanely disposed planters will soon put an end to this barbarous and unreasonable practice.

I happened to be in Yca at the time of the celebration of the negro carnival, which I will here briefly describe. In some of the principal streets of the town large arches are erected, and gaily decorated with ribbons. Round these arches negresses and mestizas dance, and endeavor to stop the negroes whilst riding at full gallop under the arches. The negroes start from the distance of about one hundred paces, and gallop straight to the boundary, where the women endeavor to seize the bridle, and to throw the rider from his saddle. The task of the men is to ride past the women without being stopped; and when they fail in so doing, they have to pay a fine, and are hooted into the bargain. It is hard to say which is most surprising;—the speed of the horses, the dexterity of the riders, or the courage of the negresses, who fearlessly throw themselves in the way of the galloping horses. During the race the negroes are pelted with unripe oranges and lemons, which, when thrown by the vigorous arm of a zamba, inflict a sufficiently heavy blow. I saw a negro gallop to and fro for the space of an hour, at full speed, and every time he passed under the arch he dexterously evaded the outstretched hands of the women; thus giving proof of uncommon bodily strength. While dashing at full speed through the arch of the bridge, and leaning forward on the horse's neck, he seized two negresses, one with each of his arms, and pulled them into the saddle beside him.

The climate of Yca is hot, and not altogether healthy, for the torrents of rain which fall from the hills swell the river so as to make it overflow its lower bank, where marshes are formed, in which malaria is developed. Most of the plantations in the environs are more healthy.

All the bushes in the vicinity of the town are inhabited by a kind of Guinea pig (*Cavia Cuttleri*, King). These animals are exceedingly numerous. After sunrise and towards evening, they leave their lurking places and play about in the grass.

*An *odre* is a goat-skin prepared for carrying wine.

Upon the whole they are not shy, and they allow people to approach them pretty closely. The natives call this little animal the *Cui del Montes*, and they believe it to be the progenitor of the tame Guinea pig. This notion is, however, quite erroneous.

Along the whole of the Peruvian coast there is found a small animal of the lizard kind, of which the natives are very much afraid. They call it the *Salamanqueja*. It lives in the fissures of walls, and is sometimes seen creeping along the lime plaster of houses. Its bite is believed to be mortal. From the descriptions given of this animal, I was curious to see it, and I commissioned some persons to procure me one. At last, an Indian brought me a specimen very much crushed, and I found that I had already got several of them in my collections. I now obtained more of them, and the natives beheld me with astonishment carrying them alive in my hand. Of the Salamanqueja there are two species, the *Diplodactylus lepidopygus*, Tsch., and the *Discodactylus phacophorus*, Tsch. They are nearly related to each other, being only distinguished by one species having an orifice in the thighs, serving as a passage for an issue from a gland which secretes a very acrid fluid. This little animal never bites; but it is possible that the fluid by touching a fresh wound, or scratch, may cause very serious consequences.

To the south of Yca there are some large cotton plantations; the most considerable of which belong to Don Domingo Elias. The cotton for exportation is shipped at the port of San Nicolas. Many experienced captains of ships declare the bay of San Nicolas to be the safest and best along the whole of the western coast of South America.

The Quebrada of Huaitara, which stretches to the east of Yca, is the principal channel of communication between this part of the coast and the rich mountain provinces of Jauja and Huancavelica, and from the latter places to Ayacucho and Cosco.

Opposite to Pisco and Chinca there is a group of small islands, of which the largest, Sangallan, is six English miles distant from Pisco. These islands have of late years become celebrated on account of the great quantity of guano that has been exported from them.

Guano (or according to the more correct orthography, Hua-

nu)* is found on these islands in enormous layers of from 35 to 40 feet thick. The upper strata are of a greyish-brown color, which lower down becomes darker. In the lower strata the color is a rusty red, as if tinged by oxide of iron. The Guano becomes progressively more and more solid from the surface downward, a circumstance naturally accounted for by the gradual deposite of the strata, and the evaporation of the fluid particles. Guano is found on all the islands, and on most of the uninhabited promontories of the west coast of South America, especially in those parts within the tropics. I have often been assured that beds of Guano several feet high, covered with earth, are found inland at some distance from the sea; but I never met with any, and I have some doubt of the correctness of the statement. If, however, these inland strata really exist, I am inclined to believe that they can only be found on hilly ground; and in that case they afford strong evidence of a considerable elevation of the coast.

Guano is formed of the excrements of different kinds of marine birds, as mews, divers, sheerbeaks, &c.; but the species which I can name with more precision are the following:—*Larus modestus*, Tsch.; *Rhinchops nigra*, Lin.; *Plotus Anhinga*, Lin.; *Pelecanus thayus*, Mol; *Phalacrocorax Gaimardii*, and *albigula*, Tsch. (*Pelecanus Gaimardii*, Less., *Carbo albigula*, Brandt), and chiefly the *Sula variegata*, Tsch.

The immense flocks of these birds as they fly along the coast appear like clouds. When their vast numbers, their extraordinary voracity, and the facility with which they procure their food, are considered, one cannot be surprised at the magnitude of the beds of Guano, which have resulted from uninterrupted accumulations

* The original word is Huanu, which is a term in the Quichua dialect meaning "animal dung;" for example, *Huanacuhuanu* (excrement of the Huanacu). As the word is now generally used it is an abbreviation of *Pishu Huanu—Bird-dung*. The Spaniards have converted the final syllable *nu* into *no*, as they do in all the words adopted from the Quichua which have the like termination. The European orthography *Guano*, which is also followed in Spanish America, is quite erroneous, for the Quichua language is deficient in the letter *G*, as it is in several other consonants. The *H*, in the commencement of the word, is strongly aspirated, whence the error in the orthography of the Spaniards, who have sadly corrupted the language of the Autochthones of Peru.

during many thousands of years. I kept for some days a living *Sula variegata*, which I fed abundantly with fish. The average weight of the excrement daily was from 3½ to five ounces. I have no doubt that when the bird is in a state of freedom the weight must be much greater, for these birds are constantly plunging into the sea, in order to devour the fishes which they find in extraordinary masses around all the islands. When an island is inhabited by millions of sea-birds, though two-thirds of the guano should be lost while flying, still a very considerable stratum would be accumulated in the course of a year.

The marine birds nestle on the uninhabited islands, or on rocks near the shore; but they never settle on the flat beach, or any place distant from it inland. On this fact, I ground my conjecture that those beds of guano in the interior, which may have been removed from the shore by important elevations of the coast, are to be found only on hills.

During the first year of the deposit the strata are white, and the guano is then called *Guano Blanco*. In the opinion of the Peruvian cultivators, this is the most efficacious kind. It is found in the Punta de Hormillos, on the islands of Islay, Jesus, Margarita, &c.

As soon as the dealers in guano begin to work one of the beds, the island on which it is formed, is abandoned by the birds. It has also been remarked, that since the increase of trade and navigation, they have withdrawn from the islands in the neighborhood of the ports.

Much has recently been written on the employment and utility of guano; but the manner in which it is applied as manure in Peru, seems to be but little known. The Peruvians use it chiefly in the cultivation of maize and potatoes. A few weeks after the seeds begin to shoot, a little hollow is dug round each root, and is filled up with guano, which is afterwards covered with a layer of earth. After the lapse of twelve or fifteen hours, the whole field is laid under water, and is left in that state for some hours. Of the *Guano Blanco* a less quantity suffices, and the field must be more speedily and abundantly watered, otherwise the roots would be destroyed. The effect of this manure *is incredibly rapid.* In a few days the growth of a plant is

doubled. If the manure be repeated a second time, but in smaller quantity, a rich harvest is certain. At least, the produce will be threefold that which would have been obtained from the unmanured soil.

The haciendas of the valley of Chancay have, during the last fifty years, consumed annually from 33,000 to 36,000 bushels of guano brought from the islands of Chancha and Pisco. The price of the bushel of colored guano is one dollar and a quarter, and the price of the white from two to three dollars. The price has recently undergone many fluctuations, in consequence of the great exports to Europe.

The employment of this kind of manure is very ancient in Peru; and there is authentic evidence of its having been used in the time of the Incas. The white guano was then chiefly found on the islands opposite to Chincha; so that for upwards of 600 years the deposit has been progressively removed from those islands without any apparent decrease of the accumulation. The uniformity of climate on a coast where there is not much rain, must contribute to render the Peruvian guano a more arid manure than the African, as fewer of the saline particles of the former being in solution, they are consequently less subject to evaporation.

From 3° 35′ to 21° 48′ south latitude, a plain of sand, 540 leagues long, and varying from 3 to 20 leagues in breadth, stretches along the coast of the Pacific Ocean. It is intersected by chains of small hillocks, which, extending westward from the Cordilleras, gradually diminish in height, and either become blended with the plain, or form abrupt promontories, which project into the sea. Between the river Loa, which marks the southern frontier of the Peruvian coast, and the Tumbez, on the northern boundary, fifty-nine rivers, great and small, pass through the line of coast. Proceeding from the avalanches of the Andes or the small alpine lakes, they force their way through narrow mountain-valleys, irrigate the waste grounds, and then, after brief courses, flow into the great ocean.

A fine light yellow drift sand covers hill and dale. It is only where rivers intersect the plain that oases of luxuriant vegetation are formed. The peril of traversing these plains is greatly

increased by the movability of the sand and the *Medanos*. The strong winds raise immense clouds of dust and sand. The sand rises in columns of from eighty to a hundred feet high, which whirl about in all directions, as if moved by magic. Sometimes they suddenly overshadow the traveller, who only escapes from them by rapid riding.

The medanos are hillock-like elevations of sand, some having a firm, others a loose base. The former, which are always crescent-shaped, are from ten to twenty feet high, and have an acute crest. The inner side is perpendicular, and the outer or bow side forms an angle with a steep inclination downward. When driven by violent winds, the medanos pass rapidly over the plains. The smaller and lighter ones move quickly forwards before the larger ones; but the latter soon overtake and crush them, whilst they are themselves shivered by the collision. These medanos assume all sorts of extraordinary figures, and sometimes move along the plain in rows forming most intricate labyrinths, whereby what might otherwise be visible in the distance is withdrawn from the view of the traveller. A plain often appears to be covered with a row of medanos, and some days afterwards it is again restored to its level and uniform aspect. Persons who have the greatest experience of the coast are apt to mistake their way, when they encounter these sand-hills.

The medanos with immovable bases are formed on the blocks of rock which are scattered about the plain. The sand is driven against them by the wind, and as soon as it reaches the top point it descends on the other side until that is likewise covered; thus gradually arises a conical-formed hill. Entire hillock-chains with acute crests are formed in a similar manner. The small hillock-chain, by which the coast is intersected obliquely from east to west, is a boundary which arrests the progress of the wandering medanos; otherwise fruitful oases would soon be converted into barren sand-flats. A correct observation of these hillock-chains affords a most certain scale for ascertaining the direction of the prevailing wind. On their southern declivities are found vast masses of sand drifted thither by the mid-day gales. *The northern* declivity, though not steeper than the

southern, is only sparingly covered with sand. If a hillock-chain somewhat distant from the sea extends in a line parallel with the Andes, namely from SS.E. to NN.W., the western declivity is almost entirely free of sand, as it is driven to the plain below by the southeast wind, which constantly alternates with the wind from the south.

The movements and new formations in the deserts (like restorations from death to life) are only in full activity during the hot season; for then the parched sand yields to the slightest pressure of the atmosphere. In the cold season its weight increases by the absorption of humidity. The particles unite in masses, and more easily resist the wind. In the meantime the hillocks also acquire more firmness or compression by the increased weight which presses on them from above.

In November, summer commences. The rays of the sun are refracted on the light grey sandy carpet, and are reflected back with scorching power. Every living thing which does not quickly escape from their influence is devoted to certain destruction. No plant takes root in the burning soil, and no animal finds food on the arid lifeless surface. No bird, no insect moves in the burning atmosphere. Only in the very loftiest regions, the king of the air, the majestic condor, may be seen floating, with daring wing, on his way to the sea coast. Only where the ocean and the desert blend with each other is there life and movement. Flocks of carrion crows swarm over the dead remains of marine animals scattered along the shore. Otters and seals impart life to the inaccessible rocks; hosts of coast birds eagerly pounce on the fish and mollusca cast on shore; variegated lizards sport on the sand hillocks; and busy crabs and sea spiders work their way by furrows through the humid coast.

The scene changes in May. A thin veil of mist then overspreads the sea and the shore. In the following months the thickness of the mist increases, and it is only in October that it begins to disperse. In the beginning and at the end of the period called winter this mist commonly rises between nine and ten o'clock in the morning, and disappears about three, P.M. It is *heaviest in* August and September; and it then lies for weeks *immoveable on the* earth. It does not resolve into what may

be properly called rain, but it becomes a fine minute precipitate which the natives call GARUA (thick fog or drizzling rain). Many travellers have alleged that there are places on the Peruvian coast which have been without rain for centuries. The assertion is to a certain degree correct, for there are many districts in which there never is rain except after an earthquake, and not always even then.

Though the *garua* sometimes falls in large drops, still there is this distinction between it and rain, that it descends not from clouds at a great height, but is formed in the lower atmospheric regions, by the union of small bubbles of mist. The average perpendicular height over which this fog passes does not exceed one thousand two hundred feet; its medium boundary is from seven to eight hundred feet. That it is known only within a few miles of the sea is a highly curious phenomenon; beyond those few miles it is superseded by heavy rains; and the boundary line between the rain and the mist may be defined with mathematical precision. I know two plantations, the one six leagues from Lima, the other in the neighborhood of Huacho: one half of these lands is watered by the garuas, the other half by rain, and the boundary line is marked by a wall.

When the mists set in, the chain of hillocks (*Lomas*) bordering the sand-flats on the coasts undergoes a complete change. As if by a stroke of magic, blooming vegetation overspreads the soil, which, a few days previously, was a mere barren wilderness. Horses and cattle are driven into these parts for grazing, and during several months the animals find abundance of rich pasture. There is, however, no water; but they do not appear to suffer from the want of it, for they are always in good healthy condition on leaving the Lomas.

In some parts of northern Peru, where the garuas are scanty, the fertility of the soil depends wholly on the mountain rains, for in summer most of the rivers are dried up. When there is a deficiency of rain, the cattle on the coast suffer greatly. A few years ago a haciendado, or cultivator, in the vale of Piura, lost 42,000 sheep; the usual flood, without which the necessary fodder could not be raised, did not come on at the proper time. At Piura there is such a total absence of dew, that a sheet of paper

left for a whole night in the open air does not, in the morning, exhibit the smallest trace of humidity. In central and south Peru the moisture scarcely penetrates half an inch into the earth.

In the oases the garuas are much heavier than in the adjacent wastes. Along the whole of the coast there is no rain, and no vegetation throughout a large circuit. The rain commences first in the north at Tumbez, and there extensive woods are seen. Towards the east it begins first in the valleys of the Cordilleras, which abound in vegetation. These very extraordinary phenomena remain as yet unexplained; they, however, merit the closest investigation of meteorologists.

I may conclude this chapter by a brief view of the Fauna of the higher vertebral animals. In the region of the coast I have found twenty-six species of mammalia, only eight of which belong exclusively to the coast. Sixteen of the other species are to be found in the mountains or in the forests. The relation of this number to the whole of the mammalia of Peru is 1 : 4, 3. Distributed by single orders, they are in the following proportions:—Bats, four species, of which only one (*Vespertilio innoxius*, Gerv.) belongs to this region alone. Beasts of prey, ten kinds; among them one of the mephitic class, known to the natives by the name of *zorillo*, or *añash;* an otter (*Lutra chilensis*, Ben.); a fox (*Canis azaræ*, Pr. Max.), which abounds in the cotton plantations in the neighborhood of Lima and throughout all the Lomas, where he preys on the lambs; several of the feline race, among which are the two great American species—the puma and the ounce, which are seldom seen on the coast, but are considerably larger than those in the mountains. The American lion is timid, and shuns man. When caught young he is easily tamed. The Indians of the northern provinces sometimes bring these lions to Lima, and get money for showing them. They lead them by a string, or put them in large sacks, and carry them about on their backs, until a show-loving crowd assembles around them. The ounces are very bold and fierce. They penetrate into plantations, and attack children and horses. They very cunningly avoid the numerous snares laid for them by the Indians. An encounter with this animal is serious and

dangerous. A hunt seldom ends without some of the pursuers being killed or wounded by the animal.

I have already spoken of the seals. There are three kinds of didelphic or marsupial animals on the coast. The natives call them *mucamuca*. They live in bushes and shrubberies, and they often find their way into the store-rooms of the plantations.

Of the great section of the *Rodentia*, I know of only seven species in Peru; but I have no doubt that this number might be doubled by a careful search in the valleys on the coast. Tho common house-mouse is very numerous in Lima. The brown rat appears seldom. It came to Peru only a few years ago; but there is reason to apprehend that it will soon be very numerous. Probably it has been imported by Hamburgh ships. In Callao I saw specimens of some that had been killed. I did not see the common black rat in Peru.

The Armadillo (*Dasypus tatuay, Desm.*, L.) is seldom seen. It is found in some of the Yucca and Camote plantations. The negroes eat it, and its flesh is said to be good.

Of wild ruminating animals there is only one on the coast: it is a kind of Roe (*Cervus nemorivagus*, F. Cuv., the *venado* of the natives). The venados chiefly inhabit the brushwood along the coast; but after sunset they visit the plantations, where they commit considerable damage. They are smaller than our European roe, and somewhat more brown. Englishmen at Lima go out to hunt them. The natives do not take much interest in the chase. This animal is also met with in the coldest regions of the Cordilleras; but it does not come down to the old forests, where the Red Deer (*Cervus rufus*, F. Cuv.) supplies its absence.

In the woods which surround some of the plantations in the valleys of Lima, wild boars (*Chanchos Simarones*) are occasionally found. They are of immense size. At the plantation called the *Hacienda de Caraponga*, one was killed, of which the head alone was an ordinary burthen for a mule.

The number of birds in this very extensive quarter of Peru (the marine and river fowl being excepted) is very inconsiderable. The scarcity of woods and high trees may probably account for this. Besides the carrion vulture, condors collect in great numbers on the shore to prey on the stranded whales. Falcons

seldom appear, except the small Sparrow Hawk (*Falco sparverius*, L.), which is very numerous in Peru. One of the most common birds is the little Earth Owl (*Noctua urucurea*, Less.), which is met with in nearly all the old ruins scattered along the coast. The Pearl Owl (*Strix perlata*, L.) is bred in several plantations, as it is found useful in catching mice. Swallows are not very common; they do not nestle on the housetops, but on walls at some distance from towns. The Peruvians give them the euphonious name, *Palomitas de Santa Rosa* (Santa Rosa's little pigeons). Among the singing-birds the Crowned Fly King (*Myoarchus coronatus*, Cab.) is the most distinguished. The head, breast, and belly of this bird are deep red, the wings and back very dark brown. He always plants himself on the highest point of a tree, flies perpendicularly upward, whirls about in the air singing, and drops down again straight to his former perch. The Limeños have given this elegant bird a very unbecoming name, which I need not repeat here. On some parts of the coast it is called *Saca-tu-real* (draw out your real), because his song sounds like these words. Some fine Tanagers (*Tanagra frugilega*, Tsch.; *Tanagra analis*, Tsch.) visit the fruit gardens round Lima. I saw two birds, of the starling species, the red-bellied Picho (*Sturnella militaris*, Viell.), and the glossy-black Chivillo (*Cassicus palliatus*, Tsch.), which are kept in cages on account of their very melodious song. Three kinds of parrots, which abound in the valleys on the coast, commit great depredations in the maize fields. The largest (*Conurus tumultuosus*, Tsch.) is green, with a red forehead, and some red feathers scattered over the body. A second sort builds its nest chiefly on the sides of rocks (*Conurus rupicola*, Tsch.), and only occasionally visits the plantations. The third is the smallest, but at the same time the most beautiful of the whole (*Conurus sitophaga*, Tsch.). A fine green overspreads all the upper part of the body, a blue fringe borders the feathers of the wings; and a bright citron-yellow is diffused over the forehead, neck, breast, and belly. It is only seven inches long. Pigeons, large and small, swarm in such multitudes over the corn-fields, and in the environs, that they may almost be called the great plague of the country. One of the finest is the little *Turtuli* (*Chaemepelia gra-*

cilis, Tsch.), on the wing of which there is a row of very beautiful shining violet spots. The *Cuculi*, one of the largest pigeons, is a great favorite. It is kept much in cages. Its song, which is monotonous, yet very melodious, is kept up from the earliest hours of the morning until midday, and it begins again nearly at sunset. The song consists merely of a threefold repetition of *cu-cu-li*. After a pause, it resumes the song again. There are, however, some of those birds which repeat the *cuculi* oftener than thrice, and their price increases according to the number of their uninterrupted repetitions, which seldom exceed five or six. In Cocachacra, however, I heard one of these birds which repeated its *cuculi* fourteen times. The owner would not sell it under fourteen gold ounces.

The amphibia on the Peruvian coast are proportionally much better represented than the two foregoing classes. The gigantic tortoises (*Chelonia imbricata* and *Ch. midas*, Schweig.) visit in great numbers the few little frequented inlets. The elephant tortoise (*Testudo Schweigeri*) is often found on some islands, and in the marshy mouths of several rivers.

Two kinds of Crocodiles (*Champsa sclerops* and *Ch. fissipes*, Wagl.) inhabit the Rio de la Chira. They grow to the length of fourteen or fifteen feet.

Among the lizard class of reptiles, very large bright green Iguanas are found on the south coast; for instance, in the Caletas near Merillones, &c.; but there are great numbers of the land Agama, of which I found several new species, viz., *Steirolepis tigris*, *thoracica*, *quadrivittata*, *xanthostigma*, Tsch.; *Liolaemus elegans*, Tsch.; *Ctenoblepharys adspersa*, Tsch., &c., &c. I have already mentioned the Gecko, called the *Salamanqueja*.

Serpents upon the whole are rather seldom seen. They belong to different kinds, some poisonous, some innoxious (for example, *Zacholus*, *Psammophis*, *Oxyrrhopus*, *Siphlophis*, *Ophis*, *Elaps*, &c., &c.). A very poisonous viper (*Eschidna ocellata*, Tsch.) inhabits the sugar-cane fields. Its bite is almost instantaneously mortal.

The genuine frog is not to be found on the coast, and of the bladder frog only two kinds are known (*Cystignathus roseus* and *nodosus*, Dum. Bibr.). I have found three amphibia of the toad class.

The Thorn toad (*Bufo spinulosus*, Wiegam.), which has its body thickly covered with a thorny kind of warts. The beautiful red spotted toad (*Bufo thaul*), and a very curious and ugly kind with a round, swelled out body, a loose skin, and a large bladder under the chin (*Anaxyrus melancholicus*, Tsch.). At night the cry of this animal is a discordant melancholy howl.

CHAPTER X.

Roads leading to the Sierra—Chaclacayo and Santa Iñes—Barometrical observations—San Pedro Mama—The Rio Seco—Extraordinary Geological Phenomenon—Similar one described by Mr. Darwin—Surco—Diseases peculiar to the Villages of Peru—The Verugas—Indian mode of treating the disorder—The Bird-catching Spider—Horse-Shoeing—Indian Tambos—San Juan de Matucanas—The Thorn-apple and the Tonga—The Tambo de Viso—Bridges—San Mateo—Passports—Acchahuari—Malady called the Veta—Its effects on horses—Singular tact and caution of Mules—Antarangra and Mountain Passes—Curious partition of Water—Piedra Parada—Yauli—Indian Smelting Furnaces—Mineral Springs—Portuguese Mine owners—Saco—Oroya—Hanging Bridges—Huaros—Roads leading from Oroya.

From Lima two main roads lead to the Sierra or the mountains. One runs northward through the valley of Canta, in the direction of the rich silver mines of Çerro de Pasco; the other, taking a more southerly direction, passes through the Quebrada of Matucanas, to the villages of Tarma, Jauja, and Huancayo; and still further south, leads to Huancavelica, Ayacucho, and Cuzco. All the roads running from the coast to the Sierra, present a similarity of character. Taking an oblique direction from the margin of the coast, they run into one or other of the fan-shaped Cordillera valleys, all of which are intersected by rivers. Following the course of these rivers, the roads become steeper and steeper, and the valleys soon contract into mere ravines, terminating at the foot of the Cordillera. The traveller then threads his way up the acclivity, amidst stupendous masses of rock, until he reaches the lofty ridge. Then a gradual descent leads to the level heights, and thence into the deep mountain valleys.

Former travellers having already described the route by way of Canta, I will here trace the course through the Quebrada of Matucanas. *In so doing*, I am enabled to present to the reader

the results of some barometrical observations which are the more interesting, inasmuch as the Cordillera here advances more nearly to the coast than at any other point.

The most easterly gate of the city of Lima (the Portada de Maravillas) opens upon a broad road, which runs directly eastward. At the distance of about a league and a half from the city, the road passes over a stone bridge called the *Puente de Surco*, a place famed for robbers. At this point the surrounding country presents a wild and dreary aspect. Ranges of grey and barren hills encompass the valley; the ground is for the most part covered with sand and gravel. Desolate remains of plantations and the ruins of habitations bear evidence of the life and activity that once animated this desert region, now abandoned by all save the fierce bandit and his victim, the solitary traveller.

Along the margins of the river, patches of moor-ground here and there serve as pasture. Clover and maize are produced only in those parts where the soil is manured and artificially watered. Low brushwood and reeds, growing on the banks of the Rimac, supply firewood to the city of Lima, and are a source of profit to some of the plantation-owners in the valley. At Periachi, four leagues from the capital, the road takes a turn to north-east, and continues in that direction, with but little deviation, as far as the base of the Cordillera. Two leagues beyond Pariachi we reach Chaclacayo, a village containing about thirty miserable reed huts. The plantation of Santa Iñes, a little further on, is situated at 2386 feet above the level of the sea.* Mr. Maclean, an English merchant in Lima, who has sent many interesting Peruvian plants to the hothouses of England, and who has made some very attentive barometrical observations during a journey in the interior of the country, calculates the altitude of Chaclacayo at 2265 feet above the sea.† Rivero makes it 2010 feet above that level.‡ The difference between these calculations is re-

* All these calculations are by English feet.

† Jardine and Selby's Annals of Natural History.

‡ Nivelacion barometrica desde el Callao hasta Pasco, por el camino de Obrajillo, y desde el mismo lugar hasta la capital por via de Tarma, hecha y calculada por Mariano Eduardo Rivero y Usturitz in Memorial de Ciencias *naturales, &c.*

markable; and in more considerable altitudes the discrepancy is still more considerable, being sometimes as much as from eight to nine hundred feet. I am inclined to believe that it is attributable less to inaccuracy of observation than to the very imperfect instrument made use of by Rivero. Maclean's observations, with some trifling exceptions, correspond with mine. He used one of Fortin's barometers, and I one of Lefevre's, which, prior to my departure from Europe, had, during several weeks, been regulated at the observatory in Paris. Unluckily, this excellent instrument was injured by a fall from my horse, and I found it impossible to get it repaired. Some barometrical observations made by M. C. Gay, during a journey in Peru, in the years 1839–40, with one of Bunten's barometers, deviate very considerably from all those above mentioned. Between the calculations of Gay and Rivero there is an average difference of from six hundred to one thousand feet.

On the road to Pasco, the Hacienda of Cavallero corresponds, in its distance from the capital, with the village of Chaclacayo, on the road I am here describing. At Chaclacayo wheat and sugar are cultivated. The sugar cane thrives well, and might be grown in greater quantity. In some of the coast districts I have seen the sugar cane cultivated at the height of 4500 feet above the sea; and I have seen it grow spontaneously, and attain perfect maturity, as high as 6800 feet.

From Santa Iñes the road continues gradually ascending to the little village of San Pedro Mama, where the two rivers, San Mateo and Santa Olaya, unite and form the Rimac. The walls of mountain which enclose the valley here rise almost perpendicularly, and afford nestling-places for small, richly-plumed parrots (*Conurus rupicola*, Tsch.). I was much surprised to see these birds inhabiting the barren rocks, as the parrot always dwells in woody regions, and is found in other places only when on its passage. I know no other species of this family, save the one I have just mentioned, which permanently nestles on mountains.

Three leagues beyond San Pedro lies the village of Cocachacra. It is a small and poor place, but is picturesquely situated, and enjoys a fine climate. Its name, signifying *coca-field*, or *plantation*, denotes that coca must formerly have been cultivated here.

At present that plant is not grown in any part near the coast, as it requires a damp and very warm climate. Cocachacra is 5386 feet above the level of the sea. Maclean fixes the altitude of San Pedro Mama, Santa Olaya, and Cocachacra, at 5331 feet. Supposing this calculation to be correct with respect to the latter village, it cannot also apply to San Pedro Mama and Santa Olaya, which lie much lower. At the two last-mentioned places I made no barometrical observations.

On the Pasco road the hamlet of Llanga is situated, at twelve leagues from Lima. On the other road Cocachacra is the same distance from the capital; but Cocachacra is about 2400 feet higher than Llanga. Between Cavallero and Llanga there is an interesting geological phenomenon, which I will here describe.

At the distance of two leagues from Lima the road takes a turn. At first it runs direct north, or north-north-west; suddenly it turns to north-north-east, and advances along the bank of the river Chillon as far as Cavallero. From thence, with slight deviations, it continues in the same course to Llanga, but at a considerable distance from the river, as the latter takes a wide sweep northward. From Cavallero the road runs for the space of three leagues, still ascending, through a barren district, along the dry bed of a river, called the Rio Seco. The last half-league of the way is very steep, and leads to the ridge of a chain of hillocks running diagonally across the valley. The ground is strewed with fragments of porphyry and other kinds of rock, like the bed of the Rimac. On reaching the ridge of the line of hillocks, the traveller beholds on the other side a hollow basin, like the dry bed of a lake: a furrow, extending lengthwise through this hollow, is the continuation of the bed of the river which is intersected by the chain of hills. Descending into the valley, and again following the course of the Rio Seco to the distance of about three leagues, we reach the village of Alcocoto, and once more arrive on the bank of the Rio de Chillon.

Here, therefore, we have evidence of the following remarkable facts, viz.:—that at some former period the river of Chillon flowed north-westward from Alcocoto to Cavallero, in the bed that is now dry; and that a chain of hills has been upheaved diagonally *across the valley* and the river. By this chain of hills the water,

being dammed up, formed a lake; then it was again driven back, until the stream broke into a new course at Alcocoto, by which means the lake emptied itself, and, having no new supply of water, it dried up. Now the Rio de Chillon flows from Alcocoto to Cavallero, taking a wide turn, first westward, next south-westward, and lastly, direct south, until, at a sharp angle, it unites with the old bed of the river. The point of junction is a quarter of a mile from the Hacienda Cavallero. This is, however, not a solitary example of the course of a river being interrupted by the uplifting of a ridge of hills. A similar instance is mentioned by Mr. Darwin, who, however, did not see it himself, but who describes it as follows, from the observation of his countryman, Mr. Gill, the engineer:—

"Travelling from Casma to Huaraz, not far distant from Lima, he (Mr. Gill) found a plain covered with ruins and marks of ancient cultivation, but now quite barren. Near it was the dry course of a considerable river, whence the water for irrigation had formerly been conducted. There was nothing in the appearance of the water-course to indicate that the river had not flowed there a few years previously; in some parts, beds of sand and gravel were spread out; in others, the solid rock had been worn into a broad channel, which in one spot was about forty yards in breadth, and eight feet deep. It is self-evident that a person following up the course of a stream will always ascend at a greater or less inclination. Mr. Gill, therefore, was much astonished, when walking up the bed of this ancient river, to find himself suddenly going down hill. He imagined that the downward slope had a fall of about forty or fifty feet perpendicular. We here have unequivocal evidence that a ridge had been uplifted right across the old bed of the stream. From the moment the river-course was thus arched the water must necessarily have been thrown back, and a new channel formed. From that period, also, the neighboring plain must have lost its fertilizing stream, and become a desert."*

The inference here deduced is, that the rising took place at a period when the district was inhabited and cultivated by men.

* Darwin's Journal, p. 359.

Of the period of the uplifting between Cavallero and Alococto I could discern no proofs. But the impression produced by the dry river bed involuntarily suggests the idea that, at no very distant period, it must have been the lodgment of a stream; for it is in all respects similar to the temporary dry river beds so frequently met with on the coast of Peru.

I made repeated visits to the Rio Seco, and I always contemplated with wonder the curious deviation of the river's course. But I must candidly confess that during my abode in Peru, I did not venture to attribute that deviation to so partial an uplifting; for I was ignorant of the existence of any similar phenomenon which would have supported such an opinion. Now, however, the example referred to by the eminent English geologist, and which has its existence on the same coast of Peru, sets all my doubts at rest, and I am quite convinced of the correctness of Mr. Darwin's view of the subject.

Having made this digression, I must now carry the reader back to Cocachacra. Pursuing the road to the distance of three leagues further, we arrive at San Geronimo de Surco. The valley in this part becomes more contracted; but on the whole its character is unchanged, with the exception that the mountains gradually become higher and steeper, and the soil less fertile. The road frequently runs along lofty walls of rock, or winds round sharp projections, which overhang deep chasms, in passing which the greatest precaution is requisite.

In several of the valleys on the road from the coast to the Sierra, and above all in the valley of Surco, there are certain springs, the water of which the Indians never drink. When a stranger unguardedly approaches one of these springs for the purpose of quenching his thirst, he is saluted by warning cries of *Es agua de Veruga!* (It is veruga water!) Even horses and mules are not suffered to refresh themselves at these springs, where the water is supposed to have the effect of producing a disorder called the *Verugas*. As the existence of this disease is not known in any other country, there appears ground for believing that it has its origin in certain local circumstances. The verugas first manifests itself by sore throat, pains in the bones, *and other feverish* symptoms. In the course of a few days an

eruption of red-colored pimples, or boils, appears. These pimples sometimes increase in magnitude, till, in some parts of the body, they become nearly as large as an egg, and blood flows from them to such an excess, that the strength of the patient is exhausted, and consumption frequently follows. From the small verugas the flow of blood is greatest. I knew an instance of a half-caste Indian who from a small veruga below the ankle lost two pounds of blood.

I was not able to trace this disease to any other cause than that which the Indians assign to it. At all events, it is certain that travellers who abstain from drinking the water of the condemned springs, escape the verugas; whilst those who only once taste such water, are attacked by the disorder. It is the same with mules and horses. One of my mules which drank veruga water was attacked by a large tumor on the leg. The disease is notoriously prevalent in the village of Santa Olaya.

The medical treatment of the Verugas by the Indians is quite empirical. They administer to the patient the infusion of a plant which they call *Huajra-Huajra;* that is, Horn-Horn.* I never witnessed any convincing proof of its efficacy. Its operation appears to be merely sudorific. A preparation of white maize is also frequently given, and it has the effect of assisting the action of the skin. When the eruption of the verugas is tardy, a few spoonfuls of wine are found to be of great service. Sudorific and purifying medicines, together with cutting out the large verugas, and keeping the wounds for a time in a state of suppuration, have heretofore been found the best mode of treatment. An accurate chemical analysis of the water which the Indians declare to be *agua de veruga*, would be very desirable.†

In the Quebrada of Canta, where the verugas are less common than in that of Matucanas, another disease, called the Uta, is of very frequent occurrence. The uta is a sort of cancer, and it is more fearful in its consequences than the verugas.

* The Spaniards term this plant *Uña de gato* (Cat's-claw), the stalk being furnished with hooked thorns resembling claws.

† For further information relative to this disease, see my communication to Wunderlich and Roser's "*Archiv für Physiologische Heilkunde.*"

Probably in no country in the world do so many local diseases prevail as in Peru. Every valley has its own peculiar disease, which frequently does not extend beyond the boundary of a few square miles, and is quite unknown in neighboring districts. The origin of these disorders is, doubtless, to be traced to certain mineral or vegetable influences as yet unknown. It is remarkable how unequally these baneful visitations affect the different races of the inhabitants. The Indians and the lighter classes of half-castes are most frequently attacked by the verugas; the whites are less liable to the disease, whilst the negroes and people of the darker shades of mixed blood seldom suffer from it. The Indians and the Chinos are particularly liable to the uta. The caracha, of which I have already spoken,* visits the Negroes, the Zamboes, and the Mulattoes; the lighter-complexioned races being much less liable to it.

At Quibe I saw a bird-catching spider (*mygale*), of extraordinary large size. The back part of the body alone measured two inches. Being at some distance I supposed it to be one of the rodent animals, and I fired at it. To my mortification I discovered my mistake when too late, for the specimen was completely destroyed by the shot, and was useless for my collection. The Indians assured me that on the margin of the stream which flowed near the plantation many larger individuals were to be found; but I never saw another of such remarkable size as the one I inadvertently destroyed.

San Geronimo de Surco is 6945 feet above the level of the sea. It is a long village, and is situated in one of the most fertile parts of the valley. The houses are detached one from another, and each is surrounded by a little chacra. This place may be regarded as the boundary-line between the coast and the Sierra. The climate is agreeable—rather hot than cold. Most of the coast plants thrive here with little culture. Bananas, chirimoyas, superb granadillas, pomegranates, camotes, &c., grow here in luxuriant abundance. Yuccas I did not see: their elevation boundary is lower. San Geronimo de Surco is infested with swarms of annoying insects, especially sancudos (*Culex molestus*,

* See page 153.

Koll.), and stinging flies (species of *Simoleum*), which banish sleep from the resting-place of the weary traveller.

In this village there is an old Spaniard who keeps a tambo, and at the same time exercises the calling of a farrier. One of my horse's shoes being loose, I got him to fasten it on. For hammering in eight nails he made me pay half a gold ounce, and at first he demanded twelve dollars. He doubtless bore in mind the old Spanish proverb: "*Por un clavo se pierde una herradura, por una herradura un cavallo, por un cavallo un cavallero,*"* and he felt assured that I must have the damage repaired at any price. Shortly after my arrival in the Sierra I got myself initiated in the art of horse-shoeing, and constantly carried about with me a supply of horse-shoes and nails, a plan which I found was generally adopted by travellers in those parts. It is only in the larger Indian villages that farriers are to be met with, that is to say in places fifty or sixty leagues distant from each other.

From Surco the road runs to the distance of two leagues tolerably level, and very close to the river, which, from Cocachacra, bears the name of Rio de San Mateo. The next village is San Juan de Matucanas, at a little distance from which there is a tambo, situated at the height of 8105 feet above the sea.† These tambos of the Sierra are wretched places, but the traveller may find in them shelter, and possibly some miserable kind of food. Even in Lima the tambos are not much better. In the capital a tambo affords the traveller the accommodation of a room, containing a table, a chair, and a bedstead; for it is always understood that he brings his mattress and bedding along with him. In the interior of the country the accommodation is limited to an empty space on the floor, just large enough to spread a mattress upon. Whenever the state of the weather permitted I always preferred sleeping in the open air. Even on a rainy night a lodging on the outside of the door is preferable to the interior of the hut, where Indians, negroes, dogs and pigs are all huddled

* By a nail is lost a shoe, by a shoe a horse, and by a horse a rider.

†According to Maclean, the elevation of Matucanas is 8026 feet above the level of the sea. I presume that this calculation refers to the village itself, which is situated about the eighth of a league from the tambo, and lies *much lower.*

together. In these tambos there is seldom any scarcity of brandy or chicha; but the hungry traveller sometimes cannot get even a potatoe or a bit of maize. Frequently, when the Indians really have provisions they will not produce them, because they are fearful of not being paid. This suspicion is pardonable enough; for when troops march through the villages the inhabitants are often cheated by the officers, and ill-treated into the bargain. Generally, in this part of the country, the people are civil, and will readily sell provisions if they are paid. Not so the Indians of the higher mountains eastward of the Cordillera. To the traveller's demand for something to eat, their uniform reply is "*Manam canchu*" (we have nothing); and it is often found necessary to resort to force in order to convert this monotonous answer into the more agreeable "*Ari conchu*" (here is something).

Matucanas, which is rather a large village, lies on the left bank of the Rimac. The houses are of brick, and roofed with straw. The soil round this village is fertile, though not favorable to the growth of those plants which demand a very warm temperature. The agricultural produce is therefore limited to maize, wheat, lucerne (which is very abundant), and potatoes; the latter are sent in great quantities to the capital. The cactus grows on the hills, and its excellent fruit (*tunas*) forms also an article of trade.

Beyond Matucanas the valley contracts into a narrow ravine no broader than the bed of the river, and it gradually assumes a wilder character. The way is difficult along the ridge of hills which borders the left bank of the river. The vegetation is less monotonous and scanty than in the valleys of the coast, and all the fissures of the hills are filled with verdure. The stunted willow (*Salix Humboldtii*, Wild.) grows along the banks of the river, and on the less steep declivities is seen the red thorn-apple (*Datura sanguinea*, R. Pav.). To the latter the natives give the names *Huacacachu*, *Yerba de Huaca*, or *Bovachevo*; and they prepare from its fruit a very powerful narcotic drink, called *tonga*. The Indians believe that by drinking the tonga they are brought into communication with the spirits of their forefathers. I once had an opportunity of observing an Indian under the influ-

ence of this drink. Shortly after having swallowed the beverage he fell into a heavy stupor: he sat with his eyes vacantly fixed on the ground, his mouth convulsively closed, and his nostrils dilated. In the course of about a quarter of an hour his eyes began to roll, foam issued from his half-opened lips, and his whole body was agitated by frightful convulsions. These violent symptoms having subsided, a profound sleep of several hours succeeded. In the evening I again saw this Indian. He was relating to a circle of attentive listeners the particulars of his vision, during which he alleged he had held communication with the spirits of his forefathers. He appeared very weak and exhausted.

In former times the Indian sorcerers, when they pretended to transport themselves into the presence of their deities, drank the juice of the thorn-apple, in order to work themselves into a state of ecstasy. Though the establishment of Christianity has weaned the Indians from their idolatry, yet it has not banished their old superstitions. They still believe that they can hold communications with the spirits of their ancestors, and that they can obtain from them a clue to the treasures concealed in the *huacas*, or graves; hence the Indian name of the thorn-apple—*huacacachu*, or grave plant.

A few miles beyond Matucanas there is a lateral valley, larger and more pleasant than the principal valley. It is called the Quebrada de Viso, and is watered by a little stream. At the point where this Quebrada forms a junction with the principal valley is situated the Tambo de Viso. It is 9100 feet above the level of the sea.* At this tambo the traveller may find a tolerable night's lodging for himself, and fodder for his horse. Here the river is crossed by a bridge, and the road then proceeds along the left bank of the river, after having been on the right bank all the way from Lima. The bridges across these mountain streams are always constructed at points where the river is most contracted by the narrow confines of the ravine. They consist merely of a few poles made of the trunk of the Maguay-tree (*Agave Americana*), and connected together by transverse

* According to Maclean's calculation, the Tambo de Viso is 9072 feet above the sea.

ropes; the ropes being overlaid with twisted branches and pieces of hoops. These bridges are not more than three feet broad, and have no balustrades. When the space between the banks of the river is too long for the Maguay stems, strong ropes made of twisted ox-hides are substituted. In crossing these bridges accidents frequently happen, owing to the hoofs of the horses and mules getting entangled in the plaited branches along the pathway. A little way beyond San Mateo I narrowly escaped being precipitated, with my mule, into the rocky chasm forming the bed of the river.

The road between Viso and San Mateo, a distance of about three leagues, is exceedingly difficult and dangerous. The ravine becomes narrowed to a mere cleft, between walls of mountain rising on either side to the height of more than a thousand feet; sometimes perpendicularly, and at other times inclining inwards, so as to form gigantic arches. The path runs along the base of these mountains, washed by the foaming waves of the stream; or it winds up the side of the precipice, over huge fragments of rock, which, being loosened by the rain, afford no secure footing for the heavily laden mules. Frequently these loosened blocks give way, and roll down into the valley. The journey from Viso to San Mateo is associated in my mind with the recollection of a most mortifying accident. A mass of rock, such as I have just described, gave way, and rolling down the precipice, hurled one of my mules into the foaming abyss. My most valuable instruments, a portion of my collections, my papers, and—to me an irreparable loss—a diary carefully and conscientiously kept for the space of fourteen months, were in a moment buried in the river. Two days afterward the current washed the dead mule ashore at Matucanas, but its load was irrecoverably lost.

Every year many beasts of burthen, and even travellers, perish on this road. In the Tambo de Viso I met an officer who, with two of his sons, was coming from the Sierra. He had placed the youngest before him, and the other, a boy of ten years of age, was seated on the mule's crupper. When they were within about half a league from Viso, a huge mass of rock, rolling down from *the mountain*, struck the elder boy, and hurled him into the river.

The afflicted father was anxiously seeking to recover the body of his lost child.

San Mateo is on the right bank of the river, and is the largest village in this valley. It corresponds in situation with Culluay in the Quebrada of Canta; as Matucanas corresponds with the village of Obrajillo. San Mateo is 10,947 feet above the level of the sea.* The soil produces abundance of potatoes, Ocas (*Oxalis tuberosa*) and Ullucas (*Tropæolum tuberosum*). Maize ripens here perfectly, but the heads are small. The lucerne is also small, but very abundant; it is very much exposed to injury from the frost, and is only good for use during the five rainy months of the year. Five hundred feet higher, that is to say, about 11,500 feet above the sea, is the boundary elevation for the growth of lucerne.

The spirit of hospitality, so generally prevalent among the Sierra Indians, does not seem to animate the Cholos of San Mateo. Their manners are rude and reserved, and they are very distrustful of strangers. As soon as a traveller enters the village, the Alcade and the Rejidores make their appearance, and demand his passport. If he cannot produce it, he may possibly be put upon a donkey, and conducted to the nearest Prefect, or may moreover run the risk of being ill-treated. But, fortunately, it is easy to escape such annoyances. Any scrap of printed or written paper will answer for a passport, as it rarely happens that either the Alcade or the Rejidores can read. On one occasion when my passport was demanded, I discovered I had lost it. Fortunately, I had in my pocket a bit of waste paper, which I had used instead of wadding in loading my gun. I ventured at all hazards to hand it to the Indian Rejidor, who having unfolded it stared very gravely at the words *Lucia di Lammermoor*, which he saw printed in large characters. It was the bill of the opera I had attended a few evenings before my departure from Lima. After examining the bill very attentively, and then scanning me very narrowly, the Rejidor returned the paper, with the observation that the passport was quite correct.

* Maclean states the elevation to be 10,984 feet above the sea. Rivero makes it 9570, and Gay 10,408 feet. Gay's is the only measurement which in *any manner corresponds* with mine and Maclean's. In general Gay's *calculations are between* 600 and 800 feet higher than ours.

From San Mateo the road runs for half a league through a gloomy ravine; and then suddenly takes a steep ascent up the side of the mountain, over fragments of stones, lying one above another like flights of steps. The stream dashes from rock to rock, covering the narrow path with foam, and washing away the blocks of stone which, in some of the most dangerous parts, serve as barriers along the edge of the precipice. On this road long trains of mules are frequently met coming from the Sierra. The traveller, at their approach, seeks some little recess into which he may creep, and there stand closely jammed against the mountain until the train passes by. This is attended by great loss of time, owing to the slow and cautious pace at which the mules proceed. On such a rencounter in a narrow mountain path, I was once obliged to wait for several hours, whilst two hundred mules passed by; and at the spot where I and my horse stood, the laden animals had scarcely space sufficient to set down their feet at the very edge of the pathway. In some places it is perfectly impossible either to go on one side or to turn back; and when horses or mules meet at these difficult points, one of the animals is obliged to plunge into the stream, before the other can have room to pass. The numerous curvatures of the road, and the projecting masses of mountain, render it impossible to see advancing objects in sufficient time to avoid collision.

After having passed this difficult tract, which is called by the natives Cacray, we reach the summit of the acclivity down which the mountain stream descends. Here the valley presents quite the Sierra character. It is no longer confined within steep and rugged mountain walls, but runs in undulating contours along the bases of the hills, and gently ascends eastward towards the principal chain of the Cordillera. The road is sometimes on the right and sometimes on the left bank of the river. Two leagues beyond San Mateo lies Chicla, a miserable Indian village, which, according to Maclean's calculation, is 12,712 feet above sea level. In some of the more sheltered parts barley is planted; but it does not ripen, and is merely used as fodder (*Alcazer*). Chicla is the last place in this valley where the soil is in any degree capable of cultivation. Half a league further on, there are a few scattered Indian huts, called the village of Acchahuari. One of these huts is a

tambo, which can never be forgotten by any unfortunate traveller who may have taken up his abode in it. Necessity several times compelled me to seek a night's lodging in this horrible tambo; but I never could remain in it till morning; and even amidst snow or rain I have been glad to get out, and take up my resting-place on the outside of the door. The hostess is a dirty old Indian woman, assisted by her daughter; and the hut is filthy beyond description. For supper, the old woman cooks a vile mess called *Chupe*, consisting of potatoes and water, mixed with Spanish pepper; but it is so dirtily prepared, that nothing but the most deadly hunger would induce any one to taste it. The beds consist of sheep-skins spread on the damp floor; and one bedchamber serves for the hostess, her daughter, her grandchildren, and the travellers; an immense woollen counterpane or blanket being spread over the whole party. But woe to the unwary traveller who trusts himself in this dormitory! He soon finds himself surrounded by enemies from whose attacks it is impossible to escape; for the hut is infested with vermin. Even should he withdraw into a corner, and make a pillow of his saddle, the annoyance pursues him. Add to all this a stifling smoke, and all sorts of mephitic exhalations, and troops of guinea-pigs who run about during the whole night, and gambol over the faces and bodies of the sleepers,—and it may readily be conceived how anxiously the traveller looks for the dawn of morning, when he may escape from the horrors of this miserable tambo. Acchahuari is 13,056 feet above the sea level. The climate is very ungenial. During the winter months, rain and snow fall without intermission; and even during the summer, heavy drifts of snow are not unfrequent. From April to July, the medium temperature during the night is 4° R.

After passing Cacray the diminished atmospheric pressure begins to produce an effect on coast horses which have not been accustomed to travel in the Sierra. They are attacked with a malady called the *veta*, which shows itself by difficulty of breathing and trembling. The animals are frequently so overpowered that they are unable either to move or stand, and if they are not immediately unsaddled and allowed to rest they perish. The *arrieros consider bleeding* a cure for this malady. They some-

times slit the horse's nostrils, a remedy which is probably efficacious, as it enables the animal to inhale the air freely. Chopped garlic put into the nostrils is supposed to be a preventive of the veta. Mules are less liable to the malady probably because they ascend the acclivities more slowly than horses. The disease does not attack the native horses of the Sierra, for which reason they are better than the coast horses for mountain travelling. Mules, however, are preferable to either. It is wonderful with what tact and penetration the mule chooses his footing. When he doubts the firmness of the ground he passes his muzzle over it, or turns up the loose parts with his hoof before he ventures to step forward. When he finds himself getting into soft and marshy ground he stands stock still, and refuses to obey either stirrup or whip. If by accident he sinks into a morass, he makes a halt, and waits very contentedly until he receives assistance. But in spite of all this sagacity the traveller will not do well to resign himself wholly to the guidance of his mule. In ordinary cases these animals allow themselves to be guided, and sometimes they appear to think it more safe to trust to the bridle than to themselves. One of my mules frequently gave me curious proofs of this sort of calculation. When, in very difficult parts of the road, I dismounted, in order to walk and lead him by the bridle, I found it impossible to get the animal to move either by force or persuasion. He spread out his legs, fixed his hoofs firmly into the ground, and obstinately resisted all my endeavors to make him move. But as soon as I remounted he willingly obeyed every movement of the bridle. With this mule I could ride through marshes, which I could never do with any other. He appeared to reflect that, as I only dismounted when the road was unsafe, his life was in no less danger than mine.

About a league beyond Acchahuari the valley is bounded by the principal chain of the Cordillera. The ascent may be gained by two different roads. One, the steeper of the two, runs southward, across the Piedra Parada; the other, on which the ascent is somewhat easier, takes an easterly direction, over Antarangra. *We will first* trace the latter course, which is the most frequented. *At the extremity* of the valley, and twenty-eight leagues from

the capital, is situated the last village, Cashapalca, 13,236 feet above the sea. Its inhabitants are chiefly employed in mining. Formerly, vast quantities of silver were obtained here. But most of the mines are now either under water or exhausted, and the village, with its mine works, has dwindled into insignificance. Beyond Cashapalca there is a tract of marshy ground, which being passed, a narrow winding road of about two leagues leads up the acclivity. The soil is clayey, and thinly bestrewed with alpine grass, intermingled with syngenesious and cruciferous plants. Two plants which are called by the natives *mala yerba* and *garban zillos*, and are a deadly poison to mules and horses, grow in great abundance here. The numerous skeletons of beasts of burthen seen along the road bear evidence of the fatal effects of those plants. Higher up the ascent the vegetation becomes more and more scanty, until at length it entirely disappears, and nothing is visible but the barren rock of the Sierra highlands.

The last division of acclivity is called by the natives the Antarangra (copper rock). On it there is a small heap of stones, which I shall describe by and by, and a cross made of the stems of the *Baccharis*. From this point the traveller catches a distant glimpse of the heaven-towering summit of the Cordillera.

I speedily mounted the ascent, and reached the goal of my journey. Here I found myself disappointed in the expectation I had formed of commanding an uninterrupted view over boundless space and distance. The prospect is greatly circumscribed by numerous rocky elevations, which spring up in every direction. The mountain passes running across the ridge of the Cordillera are bounded on all sides by rocks, sometimes not very high, but at other times rising to the elevation of 1000 feet. The pass of Antarangra (also called Portachuelo del Tingo, or Pachachaca) is 15,600 above the sea.* Nevertheless it is, during a great part of the year, free from snow. Scarcely a quarter of a league further northward are the eternal glaciers, and they are several hundred feet lower than the Pass. That the Pass itself is not permanently covered with snow is a circumstance which may

* Maclean makes it 15,543 feet; Gay, 15,924 feet; and Rivero, only 14,608 feet above the level of the sea.

probably be accounted for by the direction of the atmospheric currents. The east winds penetrate into the deep recesses of the valleys, which are sheltered against the cold south wind by the adjacent mountain ridge. The passes have a gloomy character, and the rugged grandeur of the surrounding country presents an aspect of chaotic wildness and disorder. The ground is covered with huge masses of rock; and the ungenial fruitless soil is shunned alike by plants and animals. The thin tendrils of a lichen, here and there twining on a damp mass of stone, are the only traces of life. Yet the remains of human industry and activity are everywhere observable. On all sides are seen the deep cavities which formed the entrances to the now exhausted mines. These cavities are sometimes situated at elevated points of the almost inaccessible walls of rock, and are occasionally found in the level part of the valley, and close on the roadway. Instances have occurred of travellers being killed by falling into these holes, when they have been covered by thick falls of snow.

It is curious to observe, on the Pass of Antarangra, the partition of the waters flowing into the two great oceans, the Atlantic and the Pacific. Scarcely thirty paces distant from each other there are two small lagunas. That situated most to the west is one of the sources of the Rio de San Mateo, which, under the name of the Rimac, falls into the Pacific. The other laguna, that to the eastward, sends its waters through a succession of small mountain lakes into the Rio de Pachachaca, a small tributary to the mighty Amazon river. It is amusing to take a cup of water from the one laguna and pour it into the other. I could not resist indulging this whim; and in so doing I thought I might possibly have sent into the Pacific some drops of the water destined for the Atlantic. But the whim, puerile as it may be, nevertheless suggests serious reflections on the mighty power of nature, which has thrown up these stupendous mountains from the bosom of the earth; and also on the testaceous animals found on these heights, memorials of the time when the ocean flowed over their lofty summits.

From the ridge the road runs eastward along a branch of the *principal mountain* chain. This branch forms the southern *boundary of a gently*-sloping valley. The declivity is terrace-

formed, and on each terrace there is a small clear lake. This series of lakes is called *Huascacocha* (the chain of lakes). In their waters, as in most of the mountain rivers, there is found in great numbers a small species of shad-fish (*Pygidium dispar*, Tsch.). They are caught during the night in nets, or by lines, to which the bait is fastened by small cactus-thorns.

The third in the series of the lagunas is called *Morococha* (the colored lake). On its banks some buildings have been constructed, for the smelting of copper ore. The mines which yield this metal are on the southern declivity, close to the road leading down from the Cordillera. Formerly these mines were worked for silver, but were not found very productive of that metal. Now they are again actively worked, and copper is obtained from them. The working of the Peruvian copper mines has hitherto been much neglected, though copper ore is exceedingly abundant.

The road from Morococha to Pachachaca is very uniform. The latter village, which is situated 12,240 feet above the level of the sea, was formerly a place of much greater importance than it now is. In its neighborhood there are a number of spacious buildings constructed at the time of the unfortunate English mining speculation. Most of them are only half finished. At the entrance of the village there is a large hacienda. In some of the apartments the flooring is of wood; a thing seldom seen in these parts, where the wood for such purposes must be brought from the eastern declivity of the Andes: the difficulty and expense attending this transport are so considerable, that a wooden floor is a great rarity in the habitations of the Cordillera. A mine belonging to the hacienda is situated five leagues northwest of Pachachaca, and yields rich silver ore; but a great part of it is at present under water, and its drainage would be a very difficult undertaking.

Returning to the point where the two roads across the Cordillera separate at Cashapalca, we will now trace the route by way of Piedra Parada. This way is shorter than that by Antarangra, but the ascents are much steeper. The first objects met with by the traveller on this road are some Indian huts, called *yaniyacu*, *and the ruined hacienda* of San Rafael. These being passed,

the ascent continues over broken masses of rock. About 15,200 feet above the sea there is a huge block of mountain, called the Piedra Parada, close against which a chapel was formerly erected; the mountain forming the back wall of the structure. Now there is merely an iron cross, fixed on the upper part of the block of mountain. On this spot the Archbishop used formerly to celebrate mass, when he was on his rounds through the diocese. The chapel was destroyed by lightning, and has not been rebuilt. The pass of the Piedra Parada is 16,008 feet above the sea, and is always covered with snow. Travellers frequently lose their way in this pass, an accident which befel me in March, 1842, when I was proceeding alone by that route. Being overtaken by a violent fall of snow, I could scarcely see a few paces before me. After wandering about for several hours, my horse became weary, and I began to despair of extricating myself from the dreary plains of snow. Late in the evening I reached a little valley, where, sheltered by some rocks, I passed the night. On the following morning I renewed my journey, and after considerable exertion I arrived at an Indian hut, where I obtained such directions as enabled me to recover the right course.

The eastern declivity of the Pass of Piedra Parada is steeper than that of Huascacocha. After a difficult ride of about two leagues, we reach first the valley, and then the village of Yauli. The village lies at the height of 13,100 feet above the sea, and consists of about one hundred and fifty miserable huts, affording habitations for between twelve and fourteen thousand Indians, most of whom are employed in mining.

The Cordillera, in the neighborhood of Yauli, is exceedingly rich in lead ore, containing silver. Within the circuit of a few miles, above eight hundred shafts have been made, but they have not been found sufficiently productive to encourage extensive mining works. The difficulties which impede mine-working in these parts are caused chiefly by the dearness of labor and the scarcity of fuel. There being a total want of wood, the only fuel that can be obtained consists of the dried dung of sheep, llamas, and huanacus. This fuel is called *taquia*. It produces a very brisk and intense flame, and most of the mine-owners prefer it to coal. The process of smelting, as practised by the

Indians, though extremely rude and imperfect, is nevertheless adapted to local circumstances. All European attempts to improve the system of smelting in these districts have either totally failed, or in their results have proved less effective than the simple Indian method. Complicated furnaces made after European models are exceedingly expensive, whilst the natives can construct theirs at the cost of fifty or sixty dollars each. These Indian furnaces can, moreover, be easily erected in the vicinity of the mines, and when the metal is not very abundant the furnaces may be abandoned without any great sacrifice. For the price of one European furnace the Indians may build more than a dozen, in each of which, notwithstanding the paucity of fuel, a considerably greater quantity of metal may be smelted than in one of European construction.

About half a league beyond Yauli there are upwards of twenty mineral springs, all situated within a circuit of a quarter of a mile. Several of them contain saline properties. One is called the *Hervidero* (the whirlpool). It is in the form of a funnel, and at its upper part is between ten and twelve feet diameter. Its surface is covered with foam. The temperature of the water is only 7° C. higher than the atmosphere. Some of these springs are tepid and sulphuric; and the temperature of one of them is as high as 89° C. Near some of the springs quadrangular basins have been constructed for baths, which are said to be very efficacious in cutaneous and rheumatic complaints. The climate of Yauli is exceedingly rigorous. In summer the medium temperature of the night is 8° C., but the days are mild. In winter, on the other hand, the night is + 1° C., and the day scarcely + 3° C., as the sky is continually overhung with thick clouds, which disperse themselves in continual falls of snow. I passed several weeks in Yauli and in the wild country around it, and during that time I made many valuable additions to my natural history collection.

The distance between Yauli and Pachachaca is two leagues. The road descends gently along the right bank of the Rio de Yauli, which forms the principal source of the Rio de Oroya. In this direction, as well as in other parts adjacent to Yauli, there *are numerous remains* of mining works, formerly the property of

Portuguese. These works were destroyed at the time of the persecution of the Portuguese in Peru, when the consul, Juan Bautista, was hanged by the Inquisition, in Lima. Over those events there hangs a veil of mystery, which will probably never be removed. The Portuguese were the most powerful and intelligent mine-owners in Peru, and their prosperity excited the envy of the Spanish viceroy. A number of Portuguese emigrants, who came from Brazil, to settle in the Peruvian province of Maynas, furnished the viceroy with a ground of complaint, real or pretended. He set forth that the Portuguese of the eastern parts of South America intended to make themselves masters of Peru, and conjointly with the Inquisition he commenced coercive measures against them. Their consul was accused of heresy, condemned and hanged, and the emigrants were pursued and put to death. Some of them escaped into the forests, where they were massacred by the Indians, and only a very few succeeded in getting back to Brazil. Many of the wealthy Portuguese mine-owners, seeing the danger that threatened them, sank their vast treasures in lakes, or buried them in retired places in the plains. These treasures consisted chiefly of smelted ore and silver coin, and only a very small portion was afterwards discovered. Thus were these active and intelligent mine-owners sacrificed, either to a chimerical and unfounded suspicion, or to a feeling of avarice, which, after all, failed in attaining its object. The consequences were disastrous to the country. Peruvian mining has never recovered the prosperity which it enjoyed under the management of the Portuguese.

Between Yauli and Pachachaca the way is difficult, and without an accurate knowledge of the route, the traveller is likely to lose his way, and may even incur the danger of sinking in the marshes which spread along the bank of the river. From Pachachaca a broad and gentle sloping valley conducts to La Oroya, a distance of about three leagues. In the range of mountains forming the southern boundary of this valley, the river winds its way through deep ravines. About half a league from Pachachaca there is a ford where the road divides; one division passing over the steep mountains of Yanaclara to Jauja, and the *other running into* the wild valleys of Huayhuay. Midway

between Pachachaca and La Oroya there is a small, miserable Indian village called Saco, which is seldom visited by travellers, as it is difficult to procure in it the commonest necessaries of food. In this place there is a natural bridge across the river, which has worked out a bed for itself beneath the rocks. At several points along the course of this river I observed similar bridges of rock, but this one only is passable for horses.

La Oroya lies on the left bank of the river of that name, and communicates with the right bank by means of a large hanging bridge (Puente de Soga). These bridges are composed of four ropes (sogas) made of twisted cow-hide, and about the thickness of a man's arm. The four ropes are connected together by thinner ones of the same material, fastened over them transversely. The whole is covered with branches, straw, and roots of the Agave tree. On either side, a rope rather more than two feet above the bridge serves as a balustrade. The sogas are fastened on each bank of the river by piles, or riveted into the rock. During the long continuous rains these bridges become loose and require to be tightened; but they are always lower in the middle than at the ends, and when passengers are crossing them they swing like hammocks. It requires some practice, and a very steady head, to go over the soga bridges unaccompanied by a Puentero.* However strongly made, they are not durable; for the changeableness of the weather quickly rots the ropes, which are made of untanned leather. They frequently require repairing, and travellers have sometimes no alternative but to wait for several days until a bridge is passable, or to make a circuit of 20 or 30 leagues. The Puente de Soga of Oroya is fifty yards long, and one and a half broad. It is one of the largest in Peru; but the bridge across the Apurimac, in the province of Ayacucho, is nearly twice as long, and it is carried over a much deeper gulf.

Another curious kind of bridge is that called the Huaro. It consists of a thick rope extending over a river or across a rocky chasm. To this rope are affixed a roller, and a strong piece of

* The *Puenteros* (Bridge Guides) are Indians who assist travellers in crossing these dangerous bridges.

wood formed like a yoke, and by means of two smaller ropes, this yoke is drawn along the thick rope which forms the bridge. The passenger who has to cross the Huaro is tied to the yoke, and grasps it firmly with both hands. His feet, which are crossed one over the other, rest on the thick rope, and the head is held as erectly as possible. All these preliminaries being completed, an Indian, stationed on the opposite side of the river or chasm, draws the passenger across the Huaro. This is altogether the most disagreeable and dangerous mode of conveyance that can possibly be conceived. If the rope breaks, an accident of no unfrequent occurrence, the hapless traveller has no chance of escaping with life, for being fastened, he can make no effort to save himself. Horses and mules are driven by the Indians into the river, and are made to swim across it, in doing which they frequently perish, especially when being exhausted by a long journey, they have not strength to contend against the force of the current.

The village of Oroya, about a quarter of a mile from the bridge, is built on a declivity, and according to Maclean's calculation is 12,010 feet above the level of the sea. It contains fifty-one miserable huts, which are the habitations of about two hundred Indians. From Oroya several roads branch off into the different mountain districts. The most frequented is that over the level height of Cachi-Cachi to Jauja. Along this road there are extensive tracts of ground covered with calcareous petrifactions. Another road leading to Tarma passes by the ancient Inca fortress Huichay. A third, and much frequented road is that by way of Huaypacha, and from thence to Junin and Cerro de Pasco.

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TRAVELS IN PERU.

TRAVELS IN PERU,

DURING THE YEARS 1838—1842,

ON THE COAST, IN THE SIERRA, ACROSS THE CORDILLERAS AND THE ANDES, INTO THE PRIMEVAL FORESTS.

BY DR. J. J. VON TSCHUDI.

TRANSLATED FROM THE GERMAN

BY THOMASINA ROSS.

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CHAPTER XI.

The Cordillera and the Andes—Signification of the terms—Altitude of the Mountains and Passes—Lakes—Metals—Aspect of the Cordillera—Shattered Rocks—Maladies caused by the diminished Atmospheric Pressure—The Veta and the Surumpe—Mountain Storms—The Condor—Its habits—Indian mode of Catching the Bird—The Puna or Despoblado—Climate—Currents of Warm Air—Vegetation—Tuberous Plant called the Maca—Animals of the Puna—The Llama, the Alpaco, the Huanacu and the Vicuña—The Chacu and the Bolas—Household Utensils of the Ancient Peruvians—The Viscacha and the Chinchilla—Puna Birds and Amphibia—Cattle and Pasture—Indian Farms—Shepherds' Huts—Ancient Peruvian Roads and Buildings—Treasure concealed by the Indians in the Puna.

Two great mountain chains, running parallel with each other, intersect Peru in the direction from S.S.W. to N.N.E. The chain nearest the coast of the Pacific is at the average distance of from sixty to seventy English miles from the sea. The other chain takes a parallel direction but describes throughout its whole course a slight curve eastward. These two ranges of mountain are called the Cordilleras, or the Andes: both terms being used indiscriminately. Even the creoles of Peru confound these two terms, sometimes calling the western chain by one name, and sometimes by the other. Nevertheless, a strict distinction ought to be observed:—the western chain should properly be called the Cordillera, and the eastern chain the Andes. The latter name is derived from the Quichua word Antasuyu; *Anta* signifying metal generally, but especially copper, and *Suyu* a district; the meaning of Antasuyu, therefore, is the metal district. In common parlance, the word Suyu was dropped, and the termination *a* in *Anta* was converted into *is*. Hence the word *Antis*, which is employed by all old writers and geographers; and even *now is in common* use among the Indian population of Southern

Peru. The Spaniards, according to their practice of corrupting the words of the Quichua language, have transformed Antis into *Andes*, and they apply the name without distinction to the western and the eastern chain of mountains.*

The old inhabitants of Peru dwelt chiefly along the base of the eastern mountain chain, where they drew from the mines the metal which afforded material for their tasteful and ingenious workmanship: those mountains consequently retained the name of Antis or Andes. In the time of the Incas, both chains were called Ritisuyu (Snow-Districts). The Spaniards, on the invasion of the country, advancing from the sea-coast, first arrived at the western mountains, and to them they gave the name of *Cordillera*, the term commonly employed in the Spanish language, to designate any mountain chain. Most of the earlier travellers and topographists named the western chain the *Cordillera de los Andes*, and regarded it as the principal chain, of which they considered the eastern mountains to be merely a branch. To the eastern range of mountains they gave the name of *Cordillera Oriental*. I will here strictly observe the correct denominations, calling the western chain the Cordillera, or the coast mountains; and the eastern chain the Andes, or the inner Cordillera.

These two great mountain chains stand in respect to height in an inverse relation one to the other; that is to say, the greater the elevation of the Cordillera, the more considerable is the depression of the Andes. In South Peru the ridge of the Cordillera is considerably lower than that portion of the Andes which stretches through Bolivia. The medium height of the Cordillera in South Peru is 15,000 feet above the sea; but here and there particular points rise to a much more considerable elevation. The medium height of the Andes is 17,000 feet above the sea. In central Peru the Cordillera is higher than the Andes. There the altitude of the latter along the body of the chain is 13,000 feet above the sea: on the ridge there are a few points some

* Some derive the word Andes from the people called Antis, who dwelt at the foot of these chains of mountains. A province in the department of *Cuzco, which was* probably the chief settlement of that nation, still bears *the name of* Antas.

hundred feet higher. Between Pasco and Loxas the average height of the Cordillera is between 11,000 and 12,000 feet above the sea; and the average elevation of the Andes at the corresponding point is about 2000 feet lower.

The passes do not run through valleys, but always over the ridges of the mountains. The highest mountain passes are the Rinconada (16,452 feet above the sea); the Piedra Parada (16,008 feet); the Tingo (15,600 feet); the Huatillas (14,850 feet); the Portachuelo de la Viuda (14,544 feet); the Altos de Toledo (15,530 feet); and the Altos de los Huesos (14,300 feet). In both chains there are innumerable small lakes; these are met with in all the mountain passes, and most of them are the sources of small rivers.

Both the mountain chains, as well as their lateral branches, are rich in metallic produce; but in the principal mountains gold is rare. Some rich mines on the coast, and in the province of Arequipa, are now nearly exhausted. Wash gold is plentiful in the rivers of North Peru, but it is not carefully collected. Silver, which constitutes the principal wealth of Peru, is found in greatest abundance in the principal chains, viz., in Northern and Central Peru, in the Cordillera; and in Southern Peru in the Andes. It presents itself in all forms and combinations, from the pure metal to the lead-ore mixed with silver. Even in the highest elevations, in parts scarcely trodden by human footsteps, rich veins of silver are discovered. It is scarcely possible to pass half a day in these regions without encountering new streaks. Quicksilver is likewise found, but in such small quantities, that the gain does not pay the labor of the miners. The only quicksilver vein of any magnitude is at Huancavelica. Both mountain chains are very rich in copper-ore; but it is extracted only from the Cordillera, for the distance of the Andes from the coast renders the transport too expensive. The lead and iron mines, though amazingly prolific, are not worked; the price of the metal being too low to pay the labor.

The Cordillera presents an aspect totally different from that of the Andes. It is more wild and rugged, its ridge is broader, and its summits less pyramidical. The summits of the Andes *terminate in slender sharp* points like needles. The Cordillera

descends in terraces to the level heights, whilst the slope of the Andes is uniform and unbroken. The summits of the calcareous hills which stretch eastward from the great chain of the Cordillera are broken and rugged. Large cubical blocks of stone become detached from them, and roll down into the valleys. In the Quebrada of Huari near Yanaclara, which is 13,000 feet above the sea, I collected among other fragments of rock some of a species which is found at Neufchatel in Switzerland. This disintegration, which is the effect of protracted rain and cold, imparts to the mountain ridges the most singular and beautiful forms; their fantastic outlines appearing like the work of human hands. Imagination may easily picture them to be monuments of the time of the Incas; for viewed from a distance, they look like groups of giants or colossal animals. In former times the Indians viewed these masses of rock with devout reverence, for they believed them to be the early inhabitants of the earth whom Pacchacamac in his anger transformed to stone. I may here notice some very curious forms of rock which have long been a subject of controversy among Peruvian travellers. On the road leading from Ayacucho to Huancavelica, on the level height of Paucara, about a league beyond the village of Parcos, there is a considerable number of sand-stone pyramids from eight to twenty-two feet high. They are of a reddish-white color; but in many places the inclemency of the weather has overspread them with a blackish crust. They are detached one from another. Ulloa, in his *Noticias Americanas*, after fully describing these pyramids, declares himself doubtful whether they are the work of man or of nature. He inclines to regard them as human creations, and suggests that they may possibly have been the tombs of distinguished curacas and caciques; but he admits that he is not acquainted with any similar monuments in Peru. As each pyramid consists of only one block of stone, and all are very regularly shaped, Ulloa is not indisposed to believe that the Indians possessed the secret art of melting stone. These blocks are, however, of sand-stone, and their fractures are the result of the inclemency of the weather. They are all pyramidal-shaped, *and tolerably* equal in size. In several of them the points are as *sharp and regular* as though they had been wrought by the chisel.

of the sculptor. These curious pyramids cover the plateau along a distance of more than two miles: sometimes standing closely together, and sometimes at considerable distances apart. The whole line of chalk and slate mountains extending from Ayacucho to Huancavelica is shattered, and presents similar, though less regular detritus.

I have, in my last chapter, observed that the Cordillera is the point of partition between the waters of the Pacific and the Atlantic Oceans. All the waters of the eastern declivity of the Cordillera—all those which have their source on the level heights and on the western declivity of the Andes,—flow from thence in the direction of the east, and work their way through the eastern mountain chain. Throughout the whole extent of South America there is not a single instance of the Cordillera being intersected by a river; a fact the more remarkable because in Southern Peru and Bolivia, the coast chain is lower than the Andes. This interesting phenomenon, though it has deeply engaged the attention of geologists, has not yet been satisfactorily explained. I concur in the view taken by Mr. Darwin, who observes that it would be too rash to assign to the eastern chain of Bolivia and Central Chile, a later origin than the western chain (the nearest the Pacific), but that the circumstance of the rivers of a lower mountain chain having forced their way through a higher chain seems, without this supposition, to be enigmatical. Mr. Darwin is of opinion that the phenomenon is assignable to a periodical and gradual elevation of the second mountain line (the Andes); for a chain of islets would at first appear, and as these were lifted up, the tides would be always wearing deeper and broader channels between them.

In the heights of the Cordillera the effect of the diminished atmospheric pressure on the human frame shows itself in intolerable symptoms of weariness and an extreme difficulty of breathing. The natives call this malady the *Puna* or the *Soroche;* and the Spanish Creoles give it the names of *Mareo* or *Veta.* Ignorant of its real causes they ascribe it to the exhalations of metals, especially antimony, which is extensively used in the mining operations. The first symptoms of the veta are usually felt at *the elevation of* 12,600 feet above the sea. These symp-

toms are vertigo, dimness of sight and hearing, pains in the head and nausea. Blood flows from the eyes, nose, and lips. Fainting fits, spitting of blood, and other dangerous symptoms, usually attend severe attacks of veta. The sensations which accompany this malady somewhat resemble those of sea-sickness, and hence its Spanish name *mareo*. But sea-sickness is unaccompanied by the distressing difficulty of breathing experienced in the veta. This disorder sometimes proves fatal, and I once witnessed a case in which death was the result. Inhabitants of the coast and Europeans, who for the first time visit the lofty regions of the Cordillera, are usually attacked with this disorder. Persons in good health and of a spare habit speedily recover from it, but on plethoric and stout individuals its effects are frequently very severe. After an abode of some time in the mountainous regions, the constitution becomes inured to the rarefied atmosphere. I suffered only two attacks of the veta; but they were very severe. The first was on one of the level heights; and the second on the mountain of Antaichahua. The first time I ascended the Cordillera I did not experience the slightest illness, and I congratulated myself on having escaped the veta; but a year afterwards I had an attack of it, though only of a few hours' duration. The veta is felt with great severity in some districts of the Cordillera, whilst in others, where the altitude is greater, the disorder is scarcely perceptible. Thus it would seem that the malady is not caused by diminished atmospheric pressure, but is dependent on some unknown climatic circumstances. The districts in which the veta prevails with greatest intensity are, for the most part, rich in the production of metals, a circumstance which has given rise to the idea that it is caused by metallic exhalations.

I have already described the effect of the Puna climate on beasts of burthen. Its influence on some of the domestic animals is no less severe than on the human race. To cats, it is very fatal, and at the elevation of 13,000 feet above the sea those animals cannot live. Numerous trials have been made to rear them in the villages of the upper mountains, but without effect; for after a few days' abode in those regions, the animals die in frightful convulsions; but when in this state they do not attempt to bite. I had two good opportunities of observing the disease at

Yauli. Cats attacked in this way are called, by the natives, *azorochados*, and antimony is alleged to be the cause of the distemper. Dogs are also liable to it, but it visits them less severely than cats, and with care they may be recovered.

Another scourge of the traveller in the Cordillera, is the disease called the *Surumpe*. It is a violent inflammation of the eyes, caused by the sudden reflection of the bright rays of the sun on the snow. By the rarefied air and the cutting wind, the eyes, being kept in a constant state of irritation, are thereby rendered very susceptible to the effects of the glaring light. In these regions the sky is often for a time completely overshadowed by snow clouds, and the greenish yellow of the plain is soon covered by a sheet of snow: then suddenly the sun's rays burst through the breaking clouds, and the eyes, unprepared for the dazzling glare, are almost blinded. A sharp burning pain is immediately felt, and it speedily increases to an intolerable degree. The eyes become violently inflamed, and the lids swell and bleed. The pain of the surumpe is the most intense that can be imagined, and frequently brings on delirium. The sensation resembles that which it may be imagined would be felt if cayenne pepper or gunpowder were rubbed into the eyes. Chronic inflammation, swenllig of the eyelids, dimness of sight, and even total blindness are the frequent consequences of the surumpe. In the Cordillera, Indians are often seen sitting by the road-side shrieking in agony, and unable to proceed on their way. They are more liable to the disease than the Creoles, who, when travelling in the mountains, protect their eyes by green spectacles and veils.

Heavy falls of snow in the Cordillera are usually accompanied by thunder and lightning. During five months of the year, from November to March, storms are of daily occurrence. They begin, with singular regularity, about three o'clock in the afternoon, and continue until five or half-past five in the evening. After that time storms of thunder and lightning never occur; but the falls of snow sometimes continue till midnight. As evening approaches, cold mists are drifted from the mountain-tops down upon the plains; but they are dispersed by the rays of the morning sun, which in a few hours melt the snow. The furious tempests in these regions exceed any idea that can be

formed of them, and can only be conceived by those who have witnessed them. Some of these mountain districts have acquired an ominous character for storms; Antaichahua is one of the places to which this sort of fearful celebrity belongs. For hours together flash follows flash, painting blood-red cataracts on the naked precipices. The forked lightning darts its zig-zag flashes on the mountain-tops, or, running along the ground, imprints deep furrows in its course; whilst the atmosphere quivers amidst uninterrupted peals of thunder, repeated a thousandfold by the mountain echoes. The traveller, overtaken by these terrific storms, dismounts from his trembling horse, and takes refuge beneath the shelter of some overhanging rock.

In these sterile heights, Nature withholds her fostering influence alike from vegetable and animal life. The scantiest vegetation can scarcely draw nutriment from the ungenial soil, and animals shun the dreary and shelterless wilds. The condor alone finds itself in its native element amidst these mountain deserts. On the inaccessible summits of the Cordillera that bird builds its nest, and hatches its young in the months of April and May. Few animals have attained so universal a celebrity as the condor. That bird was known in Europe, at a period when his native land was numbered among those fabulous regions which are regarded as the scenes of imaginary wonders. The most extravagant accounts of the condor were written and read, and general credence was granted to every story which travellers brought from the fairy land of gold and silver. It was only at the commencement of the present century that Humboldt overthrew the extravagant notions that previously prevailed respecting the size, strength, and habits of that extraordinary bird.

The full-grown condor measures, from the point of the beak to the end of the tail, from four feet ten inches to five feet; and from the tip of one wing to the other, from twelve to thirteen feet. This bird feeds chiefly on carrion: it is only when impelled by hunger that he seizes living animals, and even then only the small and defenceless, such as the young of sheep, vicuñas, and llamas. He cannot raise great weights with his feet, which, however, he uses to aid the power of his beak. The *principal strength* of the condor lies in his neck and in his feet;

yet he cannot, when flying, carry a weight exceeding eight or ten pounds. All accounts of sheep and calves being carried off by condors are mere exaggerations. This bird passes a great part of the day in sleep, and hovers in quest of prey chiefly in the morning and evening. Whilst soaring at a height beyond the reach of human eyes, the sharp-sighted condor discerns his prey on the level heights beneath him, and darts down upon it with the swiftness of lightning. When a bait is laid, it is curious to observe the numbers of condors which assemble in a quarter of an hour, in a spot near which not one had been previously visible. These birds possess the senses of sight and smell in a singularly powerful degree.

Some old travellers, Ulloa among others, have affirmed that the plumage of the condor is invulnerable to a musket-ball. This absurdity is scarcely worthy of contradiction; but it is nevertheless true that the bird has a singular tenacity of life, and that it is seldom killed by fire-arms, unless when shot in some vital part. Its plumage, particularly on the wings, is very strong and thick. The natives, therefore, seldom attempt to shoot the condor: they usually catch him by traps or by the laso, or kill him by stones flung from slings, or by the *Bolas*. A curious method of capturing the condor alive is practised in the province of Abancay. A fresh cow-hide, with some fragments of flesh adhering to it, is spread out on one of the level heights, and an Indian provided with ropes creeps beneath it, whilst some others station themselves in ambush near the spot, ready to assist him. Presently a condor, attracted by the smell of flesh, darts down upon the cow-hide, and then the Indian, who is concealed under it, seizes the bird by the legs, and binds them fast in the skin, as if in a bag. The captured condor flaps his wings, and makes ineffectual attempts to fly; but he is speedily secured, and carried in triumph to the nearest village.

The Indians quote numerous instances of young children having been attacked by condors. That those birds are sometimes extremely fierce is very certain. The following occurrence came within my own knowledge, whilst I was in Lima. I had a condor, which, when he first came into my possession, was very young. To prevent his escape, as soon as he was able to

fly, he was fastened by the leg to a chain, to which was attached a piece of iron of about six pounds weight. He had a large court to range in, and he dragged the piece of iron about after him all day. When he was a year and a half old he flew away, with the chain and iron attached to his leg, and perched on the spire of the church of Santo Tomas, whence he was scared away by the carrion hawks. On alighting in the street, a Negro attempted to catch him for the purpose of bringing him home; upon which he seized the poor creature by the ear, and tore it completely off. He then attacked a child in the street (a negro boy of three years old), threw him on the ground, and knocked him on the head so severely with his beak, that the child died in consequence of the injuries. I hoped to have brought this bird alive to Europe; but, after being at sea two months on our homeward voyage, he died on board the ship in the latitude of Monte Video.

Between the Cordillera and the Andes, at the height of 12,000 feet above the sea, there are vast tracts of uninhabited table-lands. These are called in the Quichua language the *Puna;* and the Spaniards give them the name of the *Despoblado* (the uninhabited). These table-lands form the upper mountain regions of the South American Highlands. They spread over the whole extent of Peru, from north-west to south-east, a distance of 350 Spanish miles, continuing through Bolivia, and gradually running eastward into the Argentine Republic. With reference to geography and natural history, these table-lands present a curious contrast to the *Llanos* (plains) of South America, situated on the other side of the Andes to the north-east. Those boundless deserts, full of organic life, are, like the Puna, among the most interesting characteristics of the New World.

The climate of these regions is not less rigorous than that of the high mountain ridges. Cold winds from the west and south-west, blow nearly all the year round from the ice-topped Cordillera; and for the space of four months these winds are daily accompanied by thunder, lightning, and snow-storms. The average state of the thermometer during the cold season (which is called summer, because it then seldom snows) is, during *the night,* —5° R.; and at midday, +9° 7′ R. In winter

the mercury seldom falls during the night below freezing point, and it continues between + 1° and 0° R.; but at noon it ascends only to 7° R. It is, however, quite impossible to determine with precision the medium temperature of these regions. For the space of a few hours the heat will frequently vary between 18° and 20° R. The transition is the more sensibly felt on the fall of the temperature, as it is usually accompanied by sharp-biting winds, so keen, that they cut the skin on the face and hands. A remarkable effect of the Puna wind is its power of speedily drying animal bodies, and thereby preventing putridity. A dead mule is, in the course of a few days, converted into a mummy; not even the entrails presenting the least trace of decomposition.

It frequently happens that, after being long exposed to these cold winds, the traveller enters warm atmospheric currents. These warm streams are sometimes only two or three paces, and at other times, several hundred feet broad. They run in a parallel direction with each other, and one may pass through five or six of them in the course of a few hours. On the level heights between Chacapalpa and Huancavelica, I remarked that they were especially frequent during the months of August and September. According to my repeated observations, I found that these warm streams chiefly follow the direction of the Cordillera; namely, from S.S.W. to N.N.E. I once travelled the distance of several leagues through a succession of these currents of warm air, none of which exceeded seven-and-twenty paces in breadth. Their temperature was 11° R. higher than that of the adjacent atmosphere. It would appear they are not merely temporary, for the mule-drivers can often foretel with tolerable accuracy where they will be encountered. The causes of these phenomena well merit the investigation of meteorologists.

The aspect of the Puna is singularly monotonous and dreary. The expansive levels are scantily covered with grasses of a yellowish-brown hue, and are never enlivened by fresh-looking verdure. Here and there, at distant intervals, may be seen a few stunted Queñua trees (*Polylepis racemosa*, R. P.), or large patches of ground covered with the Ratanhia shrub* (*Krameria*

* From the most remote times the Ratanhia has been employed by the

triandria, R. P.). Both are used by the Indians as fuel, and for roofing their huts.

The cold climate and sterile soil of the Puna are formidable impediments to agriculture. Only one plant is cultivated in these regions with any degree of success. It is the *maca*, a tuberous root grown like the potatoe, and like it used as an article of food. In many of the Puna districts the maca constitutes the principal sustenance of the inhabitants. It has an agreeable, and somewhat sweetish flavor, and when boiled in milk it tastes like the chestnut. As far as I am aware this plant has not been mentioned by any traveller, nor has its botanical character yet been precisely determined. Possibly it is a species of Tropæolum, but of this I am uncertain. The root is about the size of a large chestnut. Macas may be kept for more than a year, if, after being taken from the earth, they are left a few days to dry in the sun, and then exposed to the cold. By this means they become shrivelled and very hard. From these dried macas, the Indians prepare a sort of soup or rather syrup, which diffuses a sweet, sickly sort of odor, but which, when eaten with roasted maize, is not altogether unpalatable. The maca thrives best at the height of between 12,000 and 13,000 feet above the sea. In the lower districts it is not planted, for the Indians declare it to be flavorless when grown there. Besides the maca, barley is reared in the Puna. I saw there fields of barley 13,200 feet above the sea. It does not, however, attain full maturity, seldom even shoots into ears, and is cut whilst green as fodder for horses.

But poor and scanty as is the vegetation of the Puna, the animal kingdom is there richly and beautifully represented. Those regions are the native home of the great Mammalia, which Peru possessed before horses and black cattle were introduced by the

Indians as a medicine. It is one of their favorite remedies against spitting of blood and dysentery. Most of the Ratanhia exported to Europe is obtained in the southern provinces of Peru, particularly in Arica and Islay. The extract which is prepared in Peru, and which was formerly sent in large quantities to Europe, is now scarcely an object of traffic. For several years past no Ratanhia has been shipped from Callao, and but very little *from Truxillo.*

Spaniards. I allude to the llama and his co-genera the alpaco, the huanacu, and the vicuña. On these interesting animals I will subjoin a few observations.* The two first are kept as domestic animals; the llama perfectly, and the alpaco partially tame.

The llama measures from the sole of the hoof to the top of the head, 4 feet 6 to 8 inches; from the sole of the hoof to the shoulders, from 2 feet 11 inches to 3 feet. The female is usually smaller and less strong than the male, but her wool is finer and better. The color is very various; generally brown, with shades of yellow or black; frequently speckled, but very rarely quite white or black. The speckled brown llama is in some districts called the moromoro.

The young llamas are left with the dam for about the space of a year, after which time they are removed and placed with flocks. When about four years old, the males and females are separated; the former are trained to carry burthens, and the latter are kept in the pastures of the level heights. Most of the flocks of llamas are reared in the southern Puna provinces, viz.: —Cuzco and Ayacucho, and from thence they are sent to the silver mines of North Peru. The price of a strong full-grown llama is from three to four dollars; but if purchased in flocks in the provinces above named, they may be had for one and a half or two dollars each. Shortly after the conquest the price of one of these animals was between eighteen and twenty ducats; but the increase of horses, mules, and sheep, lowered their value. The burthen carried by the llama should not exceed one hundred and twenty-five pounds, and the animal is seldom laden with more than a hundred-weight. When the llama finds his burthen too heavy he lies down, and cannot be made to rise until some portion of the weight is removed from his back. In the silver mines the llamas are of the most important utility, as they frequently carry the metal from the mines in places where the de-

*More lengthened information respecting them may be found in the "Fauna Peruana." I have there noted all their specific varieties, and have corrected the erroneous accounts given of them by some previous travellers.

clivities are so steep that neither asses nor mules can keep their footing.

The Indians frequently proceed with large flocks of llamas to the coast, to procure salt. Their daily journeys are short, never exceeding three or four leagues; for the animals will not feed during the night, and therefore they are allowed to graze as they go, or to halt for a few hours at feeding-time. When resting they make a peculiar humming noise, which, when proceeding from a numerous flock at a distance, is like a number of Æolian harps sounding in concert.

A flock of laden llamas journeying over the table-lands is a beautiful sight. They proceed at a slow and measured pace, gazing eagerly around on every side. When any strange object scares them, the flock separates, and disperses in various directions, and the arrieros have no little difficulty in reassembling them. The Indians are very fond of these animals. They adorn them by tying bows of ribbon to their ears, and hanging bells round their necks; and before loading, they always fondle and caress them affectionately. If, during a journey, one of the llamas is fatigued and lies down, the arriero kneels beside the animal, and addresses to it the most coaxing and endearing expressions. But notwithstanding all the care and attention bestowed on them, many llamas perish on every journey to the coast, as they are not able to bear the warm climate.

Some old travellers have stated that the Indians employ the llama for riding and for draught; but these accounts are quite erroneous. It sometimes happens that when crossing a river an Indian lad, to avoid getting wet, may mount on the back of one of the llamas; but in such a case, he immediately dismounts on reaching the opposite bank. The flesh of the llama is spongy, and not agreeable in flavor. Its wool is used for making coarse cloths.

The alpaco, or paco, is smaller than the llama. It measures from the lower part of the hoof to the top of the head only three feet three inches, and to the shoulders two feet and a half. In form it resembles the sheep, but it has a longer neck and a more elegant head. The fleece of this animal is beautifully soft and *very long; in* some parts it is four or five inches in length. Its

color is usually either white or black; but in some few instances it is speckled. The Indians make blankets and ponchos of the alpaco wool. It is also frequently exported to Europe, and it sells at a good price in England. The alpacos are kept in large flocks, and throughout the whole of the year they graze on the level heights. At shearing time only they are driven to the huts. They are in consequence very shy, and they run away at the approach of a stranger. The obstinacy of the alpaco is remarkable. When one of these animals is separated from the flock, he throws himself on the ground, and neither force nor persuasion will induce him to rise;—sometimes suffering the severest punishment rather than go the way the driver wishes. Few animals seem to require so imperatively the companionship of its own species, and it is only when brought to the Indian huts very young, that the alpacos can be separated from their flocks.

The largest animal of this family is the huanacu. It measures five feet from the bottom of the hoof to the top of the head, and three feet three inches to the shoulders. In form it so nearly resembles the llama, that until a very recent period, zoologists were of opinion that the llama was an improved species of the huanacu, and that the latter was the llama in its wild state. In the "Fauna Peruana" I have explained the erroneousness of this opinion, and described the specific differences existing between the two animals. On the neck, back, and thighs the huanacu is of a uniform reddish-brown color. The under part of the body, the middle line of the breast, and the inner side of the limbs are of a dingy white. The face is dark grey, and the lips of a clear white. Of the huanacus there are not those varieties which are found among the llamas and the alpacos. The wool is shorter and coarser than that of the llama, and it is of nearly uniform length on all parts of the body.

The huanacus live in small herds of five or seven, seldom exceeding the latter number. In some districts they are very shy, and retreat when any one approaches. If taken very young they may be tamed; but they are always ready to fall back into their wild state. It is with great difficulty they can be trained

as beasts of burthen. In the menageries of Europe, huanacus brought from Chile are frequently represented to be llamas.

The vicuña is a more beautiful animal than any of those just described. Its size is between that of the llama and the alpaco. It measures from the sole of the foot to the top of the head four feet one inch, and two and a half feet to the shoulders. The neck is longer and more slender than in either of the other relative species; and from them the vicuña is also distinguished by the superior fineness of its short, curly wool. The crown of the head, the upper part of the neck, the back, and thighs, are of a peculiar reddish-yellow hue, called by the people of the country *color de vicuña*. The lower part of the neck, and the inner parts of the limbs, are of a bright ochre color, and the breast and lower part of the body are white.

During the rainy season the vicuña inhabits the ridges of the Cordillera, where some scanty vegetation is to be found. It never ventures up to the naked rocky summits, for its hoofs being accustomed only to turfy ground, are very soft and tender. It lives in herds, consisting of from six to fifteen females, and one male, who is the protector and leader of the herd. Whilst the females are quietly grazing, the male stands at the distance of some paces apart, and carefully keeps guard over them. At the approach of danger he gives a signal, consisting of a sort of whistling sound, and a quick movement of the foot. Immediately the herd draws closely together, each animal anxiously stretching out its head in the direction of the threatening danger. They then take to flight; first moving leisurely and cautiously, and then quickening their pace to the utmost degree of speed; whilst the male vicuña who covers the retreat frequently halts, to observe the movements of the enemy. The females, with singular fidelity and affection, reward the watchful care of their protector. If he is wounded or killed, they gather round him in a circle, uttering their shrill tones of lamentation, and they will suffer themselves to be captured or killed, rather than desert him by pursuing their flight. The neigh of the vicuña, like that of the other animals of its class, resembles a short, sharp whistle. But when the shrill sound vibrates through the pure Puna air,

the practised ear can readily distinguish the cry of the vicuña from that of the other animals of the same family.

The Indians seldom employ fire-arms in hunting the vicuñas. They catch them by what they term the *chacu*. In this curious hunt, one man at least belonging to each family in the Puna villages takes a part, and women accompany the train, to officiate as cooks to the hunters. The whole company, frequently amounting to seventy or eighty individuals, proceeds to the Altos (the most secluded parts of the Puna), which are the haunts of the vicuñas. They take with them stakes, and a great quantity of rope and cord. A spacious open plain is selected, and the stakes are driven into the ground in a circle, at intervals of from twelve to fifteen feet apart, and are connected together by ropes fastened to them at the height of two or two and a half feet from the ground. The circular space within the stakes is about half a league in circumference, and an opening of about two hundred paces in width is left for entrance. On the ropes by which the stakes are fastened together the women hang pieces of colored rags, which flutter about in the wind. The chacu being fully prepared, the men, some of whom are mounted on horseback, range about within a circuit of several miles, driving before them all the herds of vicuñas they meet with, and forcing them into the chăcu. When a sufficient number of vicuñas is collected, the entrance is closed. The timid animals do not attempt to leap over the ropes, being frightened by the fluttering rags suspended from them, and, when thus secured, the Indians easily kill them by the *bolas*. These bolas consist of three balls, composed either of lead or stone; two of them heavy, and the third rather lighter. They are fastened to long, elastic strings, made of twisted sinews of the vicuña, and the opposite ends of the strings are all tied together. The Indian holds the lightest of the three balls in his hand, and swings the two others in a wide circle above his head; then, taking his aim at the distance of about fifteen or twenty paces, he lets go the hand-ball, upon which all the three balls whirl in a circle, and twine round the object aimed at. The aim is usually taken at the hind legs of the animals, and the cords twisting round them, they become firmly bound. It requires great skill and long practice to throw

the bolas dexterously, especially when on horseback: a novice in the art incurs the risk of dangerously hurting either himself or his horse, by not giving the balls the proper swing, or by letting go the hand-ball too soon.

The vicuñas, after being secured by the bolas, are killed, and the flesh is distributed in equal portions among the hunters. The skins belong to the Church. The price of a vicuña skin is four reals. When all the animals are killed, the stakes, ropes, &c., are packed up carefully, and conveyed to another spot, some miles distant, where the chacu is again fixed up. The hunting is continued in this manner for the space of a week. The number of animals killed during that interval varies according to circumstances, being sometimes fifty or sixty, and at other times several hundred. During five days I took part in a chacu hunt in the Altos of Huayhuay, and in that space of time 122 vicuñas were caught. With the money obtained by the sale of the skins a new altar was erected in the church of the district. The flesh of the vicuña is more tender and better flavored than that of the llama. Fine cloth and hats are made of the wool. When taken young, the vicuñas are easily tamed, and become very docile; but when old, they are intractable and malicious. At Tarma I possessed a large and very fine vicuña. It used to follow me like a dog whenever I went out, whether on foot or on horseback.

The frequent hunting seems not to have the effect of diminishing the numbers of these animals. If in the vicinity of the villages where chacus are frequently established, they are less numerous than in other parts, it is because, to elude the pursuit of the hunters, they seek refuge in the Altos, where they are found in vast numbers. Several modern travellers have lamented the diminution of the vicuñas, but without reason. In former times those animals were hunted more actively than at present.

Under the dynasty of the Incas, when every useful plant and animal was an object of veneration, the Peruvians rendered almost divine worship to the llama and his relatives, which exclusively furnished them with wool for clothing, and with flesh *for food*. The temples were adorned with large figures of these *animals made* of gold and silver, and their forms were repre-

sented in domestic utensils made of stone and clay. In the valuable collection of Baron Clemens von Hügel at Vienna, there are four of these vessels, composed of porphyry, basalt, and granite, representing the four species, viz., the llama, the alpaco, the huanacu, and the vicuña. These antiquities are exceedingly scarce, and when I was in Peru I was unable to obtain any of them. How the ancient Peruvians, without the aid of iron tools, were able to carve stone so beautifully, is inconceivable.

Besides the animals above mentioned, several others peculiar to the Puna are deserving of remark. Among these are the Tarush (*Cervus antisiensis*, Orb.); the timid roe, which inhabits the high forests skirting the Andes; the Viscacha (*Lagidium peruanum*, May, and *L. pallipes*, Benn.), and the Chinchilla (*Eriomys Chinchilla*, Licht.), whose skin supplies the beautiful fur so much prized by the ladies of Europe. The viscachas and chinchillas resemble the rabbit in form and color, but they have shorter ears and long rough tails. They live on the steep rocky mountains, and in the morning and evening they creep out from their holes and crevices to nibble the alpine grasses. At night the Indians set before their holes traps made of horse-hair, in which the animals are easily caught. The most remarkable of the beasts of prey in these high regions is the Atoc (*Canis Azaræ*, Pr. Max.). It is a species of fox, which is found throughout the whole of South America. The warmer Puna valleys are inhabited by the Cuguar (*Felis concolor*, L.), or, as the Indians call it, the Poma. When driven by hunger, this animal ventures into the loftiest Puna regions, even to the boundary of the eternal snow. The wild Hucumari (*Ursus ornatus*, Fr. Cuv.) but seldom wanders into the cold Puna. The hucumari is a large black bear, with a white muzzle and light-colored stripes on the breast.

Of the numerous Puna birds, the majority of which may be classed as water-fowl, I will notice only a few of the most characteristic. Next to the condor, the most remarkable bird of prey is the Huarahuau, or the Aloi (*Polyborus megalopterus*, Cob.),* one of the gyr-falcon species. This bird, which is a constant inhabitant of the level heights, preys on the carcases of dead

* *Phalcoboenus montanus*, Orb.

horses, mules, &c., but never attempts to meddle with living animals. It is very harmless, and has so little timidity, that it suffers itself to be approached near enough to be knocked down with a stick. The Acacli, or Pito (*Colaptes rupicola*, Orb.), flutters about the mountains; it is a woodpecker, brown-speckled, with a yellow belly. This bird is seen in very great numbers, and it is difficult to imagine how it procures food in the Puna, where there are no insects. All the other woodpecker species exclusively confine themselves to woody regions.

The thickets of rushy grass are inhabited by the Pishacas, or Yutu, a species of partridge (*Tinamotis Pentlandii*, Vig.) which the Indians catch by dogs. These dogs of the Puna Indians are a peculiar race (*Canis Ingæ*, Tsch.). They are distinguished by a small head, a pointed muzzle, small erect ears, a tail curling upwards, and a thick shaggy skin. They are in a half-wild state, and very surly and snappish. They furiously attack strangers, and even after having received a deadly wound they will crawl along the ground, and make an effort to bite. To white people they appear to have a particular antipathy; and sometimes it becomes rather a venturous undertaking for a European traveller to approach an Indian hut, for these mountain dogs spring up to the sides of the horse, and try to bite the rider's legs. They are snarlish and intractable even to their masters, who are often obliged to enforce obedience by the help of a stick. Yet these dogs are very useful animals for guarding flocks, and they have a keen sent for the pishacas, which they catch and kill with a single bite.

There is a very curious little bird in the Puna, about the size of a starling. Its plumage is exceedingly pretty, being on the back brown, striped with black; on the throat grey, with two dark stripes, and on the breast white. This bird has the remarkable peculiarity of making a monotonous sound at the close of every hour, during the night. The Indians call it the Inga-huallpa, or Cock of the Inga (*Thinocorus Ingæ*, Tsch.), and they associate many superstitious notions with its regular hourly cry. The Puna morasses and lagunas are animated by numerous feathered inhabitants. Among them is the huachua (*Chloephaga melanoptera*, Eyt.), a species of goose. The plumage of the body

is dazzlingly white, the wings green, shading into brilliant violet, and the feet and beak of a bright red. The Licli (*Charadrius resplendens*, Tsch.) is a plover, whose plumage in color is like that of the huachua, but with a sort of metallic brightness. There are two species of ibis which belong to the Puna, though they are occasionally seen in some of the lower valleys. One is the Bandurria (*Theristocus melanopis*, Wagl.), and the other is the Yanahuico (*Ibis Ordi*, Bonap.). On the lagunas swim large flocks of Quiullas (*Larus serranus*, Tsch.), white mews, with black heads and red beaks, and the gigantic water-hen (*Fulica gigantea*, Soul.). The plumage of the latter is dark-grey, and at the root of the red beak there is a large yellow botch, in the form of a bean, whence the Indians give this bird the name of *Anash sinqui*, or bean nose. Among the few amphibia found in these regions one is particularly remarkable. It is a small kind of toad (*Leiuperus viridis*, Tsch.), and inhabits the boundaries of the perpetual snow.

The grasses of the Puna are used as fodder, and in many of the sheltered valleys there are farms (*Haciendas de Ganado*), where large herds of cattle are reared. The owners of some of these farms possess several thousand sheep, and from four to five hundred cows. During the rainy season the cattle are driven into the Altos. They graze in those high regions, often at the altitude of 15,000 feet above the sea. When the frost sets in they are brought down to the marshy valleys, and they suffer much from insufficiency of pasture. From the wool of the sheep a coarse kind of cloth, called Bayeta, is made in the Sierra. Some of this wool is exported, and is much prized in Europe. The old black cattle and sheep are slaughtered, and their flesh, when dried, is the principal food of the inhabitants of the Puna, particularly of the mining population. The dried beef is called *Charqui*, and the mutton is called *Chalona*. The bulls graze in the remote Altos, and most of them are reserved for the bull fights in the Sierra villages. As they seldom see a human being they become exceedingly wild ; so much so that the herdsmen are often afraid to approach them. In the daytime they roam about marshy places, and at nightfall they retire for shelter beneath *some overhanging* rock. These animals render travelling

in many parts of the Puna extremely dangerous, for they often attack people so suddenly as to afford no time for defence. It is true they usually announce their approach by a deep bellow; but the open plain seldom presents any opportunity for escape. On several occasions a well-aimed shot alone saved me from the attack of one of these ferocious bulls.

The walls of the haciendas are of rough unhewn stone. They are divided into large square rooms, always damp, cold, and uninhabitable. Beneath the straw roofs there usually hang long rows of the stuffed skins of foxes; for every Indian who kills an old fox receives, by way of reward, a sheep, and for a young one a lamb. The Cholos are therefore zealous fox-hunters, and they may possibly succeed in altogether extirpating that animal, which in some districts is so numerous as to be a perfect scourge.

As the sheep, even in the dry season, find pasture more easily than the horned cattle, they are left during the whole year in the higher parts of the Puna, under the care of Indian shepherds. At night they are driven into *corales*, large square roofless buildings, and are guarded by dogs. The shepherds make a practice of every year burning the dry grass of the Puna, in order to improve the growth of the fodder. A Puna fire does not, however, present the imposing spectacle of the prairie fires, as described by travellers in North America, possibly because the Puna straw is shorter, and is always somewhat damp.

The dwellings of the shepherds are built in the same rude style which characterizes all the huts in the Puna, and they impress the European traveller with a very unfavorable notion of the intelligence of the people. The architecture of these huts consists in laying down some large stones, in a circle of about eight or ten feet in diameter, by way of a foundation. These stones are covered with earth or turf, and then with successive layers of stones and earth, until the wall attains the height of about four feet: at the point most sheltered from the wind, an opening of a foot and a half or two feet high serves as a door. On this low circular wall rests the roof, which is formed in the following manner. Six or eight magay* poles are fastened to-

* *The Magay is* the stem of the American Agave. It has a sort of spungy

gether, so as to form a point at the top. Over these poles thin laths are laid horizontally, and fastened with straw-bands, and the whole conical-formed frame-work is overlaid with a covering of Puna straw. As a security against the wind, two thick straw-bands are crossed over the point of the roof, and at their ends, which hang down to the ground, heavy stones are fastened. The whole fabric is then completed. The hut at its central point is about eight feet high; but at the sides, no more than three and a half or four feet. The entrance is so low, that one is obliged to creep in almost bent double; and before the aperture hangs a cow-hide, by way of a door.

Internally these huts present miserable pictures of poverty and uncleanliness. Two stones serve as a stove, containing a scanty fire fed by dry dung (*buñegas*), and turf (*champo*). An earthen pot for cooking soup, another for roasting maize, two or three gourd-shells for plates, and a porongo for containing water, make up the catalogue of the goods and chattels in a Puna hut. On dirty sheep-skins spread on the ground, sit the Indian and his wife, listlessly munching their coca; whilst the naked children roll about paddling in pools of water formed by continual drippings from the roof. The other inhabitants of the hut are usually three or four hungry dogs, some lambs, and swarms of guinea-pigs.

From all this it will readily be imagined that a Puna hut is no very agreeable or inviting retreat. Yet, when worn out by the dangers and fatigues of a long day's journey, and exposed to the fury of a mountain storm, the weary traveller, heedless of suffocating clouds of smoke and mephitic odors, gladly creeps into the rude dwelling. Taking up his resting-place on the damp floor, with his saddle-cloth for a pillow, he is thankful to find himself once again in a human habitation, even though its occupants be not many degrees elevated above the brute creation.

In the Puna there are many remains of the great high road of the Incas, which led from Cuzco to Quito, stretching through the

sap; but it is covered externally with a strong tough bast. The Magay supplies the inhabitants of Upper Peru with an excellent kind of light and strong building wood.

whole extent of Peru. It was the grandest work that America possessed before European civilisation found its way to that quarter of the world. Even those who are unacquainted with the wise dominion of the ancient Peruvian sovereigns, their comprehensive laws, and the high civilisation they diffused over the whole country, must by this gigantic work be impressed with the highest idea of the cultivation of the age; for well-constructed roads may always be regarded as proofs of a nation's advancement. There is not in Peru at the present time any modern road in the most remote degree comparable to the Incas' highway. The best preserved fragments which came under my observation were in the Altos, between Jauja and Tarma. Judging from these portions, it would appear that the road must have been from twenty-five to thirty feet broad, and that it was paved with large flat stones. At intervals of about twelve paces distant one from another there is a row of smaller stones, laid horizontally and a little elevated, so that the road ascended, as it were, by a succession of terraces. It was edged on each side by a low wall of small stones.

Other remains of ancient Peru, frequently met with in these parts, are small buildings, formerly used as stations for the messengers who promulgated the commands of the Incas through all parts of the country. Some of these buildings are still in a tolerably good state of preservation. They were always erected on little hillocks, and at such distances apart, that from each station the nearest one on either side was discernible. When a messenger was despatched from a station a signal was hoisted, and a messenger from the next successive station met him halfway, and received from him the despatch, which was in this manner forwarded from one station to another till it reached its destination. A constant communication was thus kept up between the capital and the most distant parts of the country. A proof of the extraordinary rapidity with which these communications were carried on is the fact, recorded on unquestionable authority, that the royal table in Cuzco was served with fresh fish, caught in the sea near the Temple of the Sun in Lurin, a *distance* of more than 200 leagues from Cuzco.

The messenger stations have by some travellers been con-

founded with the forts, of which remains are met with along the great Inca road. The forts were buildings destined for totally different purposes. They were magazines for grain, and were built by the Incas to secure to their armies in these barren regions the requisite supplies of food. Vestiges of these forts are frequently seen in the Altos of Southern and Central Peru. They are broad round towers, usually built against a rocky declivity, and with numerous long apertures for the admission of air.

Even the broad level heights in which no trace of human habitations is discoverable, have been excavated by the mercenary Peruvian mestizos and creoles in search of hidden treasures. Their faith in the existence of concealed riches is founded on the following tradition. When the last reigning Inca, Atabiliba or Atahuallpa, was made prisoner by Don Francisco Pizarro, in Caxamarca, he proposed to ransom himself from the Spanish commander. The price he offered for his liberty was to fill with gold the cell in which he was confined, to the height of a certain line on the wall, which Pizarro marked with his sword. The cell, it may be mentioned, was twenty-two feet long and seventeen broad. A quantity of gold which the Inca ordered to be collected in Caxamarca and its vicinity, when piled up on the floor of the cell, did not reach above halfway to the given mark. The Inca then despatched messengers to Cuzco to obtain from the royal treasury the gold required to make up the deficiency; and accordingly eleven thousand llamas were despatched from Cuzco to Caxamarca, each laden with one hundred pounds of gold. But ere the treasure reached its destination, Atahuallpa was hanged by the advice of Don Diego de Almangra and the Dominican monk Vicente de Valverde. The terror-stirring news flew like wild-fire through the land, and speedily reached the convoy of Indians, who were driving their richly-laden llamas over the level heights into Central Peru. On the spot where the intelligence of Atahuallpa's death was communicated to them, the dismayed Indians concealed the treasure, and then dispersed.

Whether the number of the llamas was really so considerable as it is stated to have been, may fairly be doubted; but that a vast quantity of gold was on its way to Caxamarca, and was con-

cealed, is a well-authenticated fact. That the Indians should never have made any attempt to recover this treasure is quite consistent with their character. It is not improbable that even now some particular individuals among them may know the place of concealment; but a certain feeling of awe transmitted through several centuries from father to son, has, in their minds, associated the hidden treasure with the blood of their last king, and this feeling doubtless prompts them to keep the secret inviolate.

From traditionary accounts, which bear the appearance of probability, it would appear that the gold was buried somewhere in the Altos of Mito, near the valley of Jauja. Searches have frequently been made in that vicinity, but no clue to the hiding-place has yet been discovered.

CHAPTER XII.

Cerro de Pasco—First discovery of the Mines—Careless mode of working them—Mine Owners and Mine Laborers—Amalgamating and Refining—Produce of the Mines—Life in Cerro de Pasco—Different Classes of the Population—Gaming and Drunkenness—Extravagance and Improvidence of the Indian Mine Laborers—The Cerro de San Fernando—Other Important Mining Districts in Peru—The Salcedo Mine—Castrovireyna—Vast Productiveness of the Silver Mines of Peru—Rich Mines secretly known to the Indians—Roads leading from Cerro de Pasco—The Laguna of Chinchaycocha—Battle of Junin—Indian Robbers—A Day and a Night in the Puna Wilds.

HAVING traversed the long and difficult route from the capital of Peru, by way of the wild Cordillera to the level heights of Bombon, and from thence having ascended the steep winding acclivities of the mountain chain of Olachin, the traveller suddenly beholds in the distance a large and populous city. This is the celebrated Cerro de Pasco, famed throughout the world for its rich silver mines. It is situated in 10° 48′ S. latitude and 76° 23′ W. longitude, and at the height of 13,673 feet above the sea level. It is built in a basin-shaped hollow, encircled by barren and precipitous rocks. Between these rocks difficult winding roads or paths lead down to the city, which spreads out in irregular divisions, surrounded on all sides by little lagunes, or swamps. The pleasing impression created by the first view of Cerro de Pasco from the heights is very greatly modified on entering the town. Crooked, narrow, and dirty streets are bordered by rows of irregularly-built houses; and miserable Indian huts abut close against well-built dwellings, whose size and structure give a certain European character to the city when viewed from a distance. Without bestowing a glance on the busy throng which circulates through the streets and squares, the varied styles of the buildings sufficiently indicate to the observer how

many different classes of people have united together to found, in the tropics, and on the very confines of the perpetual snow, a city of such magnitude, and of so motley an aspect. The wild barrenness of the surrounding scenery, and the extreme cold of the rigorous climate—the remote and solitary position of the city—all denote that one common bond of union must have drawn together the diversified elements which compose the population of Cerro de Pasco. And so it really is. In this inhospitable region, where the surface of the soil produces nothing, nature has buried boundless stores of wealth in the bowels of the earth, and the silver mines of Cerro de Pasco have drawn people from all parts of the world to one point, and for one object.

History relates that about two hundred and fifteen years ago an Indian shepherd, named Huari Capcha, tended his flocks on a small pampa to the south-east of the Lake of Llauricocha, the mother of the great river Amazon. One day, when the shepherd had wandered farther than usual from his hut, he sought a resting-place on a declivity of the Cerro de Santiestevan, and when evening drew in he kindled a fire to protect himself against the cold; he then lay down to sleep. When he awoke on the following morning, he was amazed to find the stone beneath the ashes of his fire melted and turned to silver. He joyfully communicated the discovery to his master, Don Jose Ugarte, a Spaniard, who owned a hacienda in the Quebrada de Huariaca. Ugarte forthwith repaired to the spot, where he found indications of a very rich vein of silver ore, which he immediately made active preparations for working. In this mine, which is distinguished by the name of *La Descubridora* (the discoverer), silver is still obtained. From the village of Pasco, about two leagues distant, where already productive mines were worked, several rich mine owners removed to Llauricocha; here they sought and discovered new veins, and established new mining works. The vast abundance of the ore drew new speculators to the spot; some to work the mines, and others to supply the necessary wants of the increasing population. In this manner was rapidly founded a city, which, at times when the produce of metal is very considerable, counts 18,000 inhabitants.

In Cerro de Pasco there are two very remarkable veins of

silver. One of them, the Veta de Colquirirca, runs nearly in a straight line from north to south, and has already been traced to the length of 9,600 feet, and the breadth of 412; the other vein is the Veta de Pariarirca, which takes a direction from east-south-east to west-north-west, and which intersects the Veta de Colquirirca precisely, it is supposed, under the market-place of the city. Its known extent is 6,400 feet in length, and 380 feet in breadth. From these large veins numberless smaller ones branch off in various directions, so that a net-work of silver may be supposed to spread beneath the surface of the earth. Some thousand openings or mouths (*bocaminas*) are the entrances to these mines. Most of these entrances are within the city itself, in small houses; and some are in the dwellings of the mine-owners. Many of them are exceedingly shallow, and not more than five hundred deserve the name of shafts. All are worked in a very disorderly and careless way; the grand object of their owners being to avoid expense. The dangerous parts in the shafts are never walled up, and the excavations proceed without the adoption of any measures of security. The consequence is, that accidents caused by the falling in of the galleries are of frequent occurrence; and every year the lives of numbers of the Indian miners are sacrificed. A melancholy example of the effects of this negligence is presented by the now ruined mine of Matagente (literally *Kill People*), in which three hundred laborers were killed by the falling in of a shaft. I descended into several of the mines, among others into the *Descubridora*, which is one of the deepest, and I always felt that I had good reason to congratulate myself on returning to the surface of the earth in safety. Rotten blocks of wood and loose stones serve for steps, and, where these cannot be placed, the shaft, which in most instances runs nearly perpendicular, is descended by the help of rusty chains and ropes, whilst loose fragments of rubbish are continually falling from the damp walls.

The mine laborers, all of whom are Indians, are of two classes. One class consists of those who work in the mines all the year round without intermission, and who receive regular wages from the mine owners;—the other class consists of those who make *only temporary visits* to Cerro de Pasco, when they are attracted

thither by the *boyas*.* This latter class of laborers are called *maquipuros*. Most of them come from the distant provinces, and they return to their homes when the boya is at an end. The mine laborers are also subdivided into two classes, the one called *barreteros*, whose employment consists in breaking the ore; and the other called *hapires*, or *chaquiris*, who bring up the ore from the shaft. The work allotted to the hapires is exceedingly laborious. Each load consists of from fifty to seventy-five pounds of metal, which is carried in a very irksome and inconvenient manner in an untanned hide, called a capacho. The hapire performs his toilsome duty in a state of nudity, for, notwithstanding the coldness of the climate, he becomes so heated by his laborious exertion, that he is glad to divest himself of his clothing. As the work is carried on incessantly day and night, the miners are divided into parties called *puntas*, each party working for twelve successive hours. At six o'clock morning and evening the *puntas* are relieved. Each one is under the inspection of a mayor-domo. When a mine yields a scanty supply of metal, the laborers are paid in money; the barreteros receiving six reals per day, and the hapires only four. During the *boyas* the laborers receive instead of their wages in money, a share of the ore. The Indians often try to appropriate to themselves surreptitiously pieces of ore; but to do this requires great cunning and dexterity, so narrowly are they watched by the mayor-domos. Nevertheless, they sometimes succeed. One of the hapires related to me how he had contrived to carry off a most valuable piece of silver. He fastened it on his back, and then wrapping himself in his poncho, he pretended to be so ill, that he obtained permission to quit the mine. Two of his confederates who helped him out, assisted him in concealing the treasure. The *polvorilla*, a dark powdery kind of ore, very full of silver, used to be abstracted from the mines by the following stratagem. The workmen would strip off their clothes, and having moistened the whole

* A mine is said to be in *boya* when it yields an unusually abundant supply of metal. Owing to the great number of mines in Cerro de Pasco, some of them are always in this prolific state. There are times when the *boyas bring* such an influx of miners to Cerro de Pasco that the population *is augmented to* double or triple its ordinary amount.

of their bodies with water, would roll themselves in the *polvorilla* which stuck to them. On their return home they washed off the silver-dust and sold it for several dollars. But this trick being detected, a stop was soon put to it, for, before leaving the mines, the laborers are now required to strip in order to be searched.

The operation of separating the silver from the dross is performed at some distance from Cerro de Pasco, in haciendas, belonging to the great mine owners. The process is executed in a very clumsy, imperfect, and at the same time, a very expensive manner. The amalgamation of the quicksilver with the metal is effected by the tramping of horses. The animals employed in this way are a small ill-looking race, brought from Ayacucho and Cuzco, where they are found in numerous herds. The quicksilver speedily has a fatal effect on their hoofs, and after a few years the animals become unfit for work. The separation of the metals is managed with as little judgment as the amalgamation, and the waste of quicksilver is enormous. It is computed that on each mark of silver, half a pound of quicksilver is expended. The quicksilver, with the exception of some little brought from Idria and Huancavelica, comes from Spain in iron jars, each containing about seventy-five pounds weight of the metal. In Lima the price of these jars is from sixty to 100 dollars each, but they are occasionally sold as high as 135 or 140 dollars. Considering the vast losses which the Peruvian mine owners sustain by the waste of quicksilver and the defective mode of refining, it may fairly be inferred, that their profits are about one-third less than they would be under a better system of management.

In Cerro de Pasco there are places called *boliches*, in which the silver is separated from the dross by the same process as that practised in the *haciendas*, only on a smaller scale. In the *boliches* the amalgamation is performed, not by horses but by Indians, who mix the quicksilver with the ore by stamping on it with their feet for several hours in succession. This occupation they usually perform barefooted, and the consequence is, that paralysis and other diseases caused by the action of mercury, are *very frequent* among the persons thus employed. The

owners of the *boliches*, who are mostly Italians, are not mine proprietors. They obtain the metal from the Indians, who give them their *huachacas** in exchange for brandy and other articles. On the other hand, the owners of the *boliches* obtain the money required for their speculations from capitalists, who make them pay an enormous interest. Nevertheless, many amass considerable fortunes in the course of a few years; for they scruple not to take the most unjust advantage of the Indians, whose laborious toil is rewarded by little gain.

The law requires that all the silver drawn from the mines of Cerro de Pasco shall be conveyed to a government smelting-house, called the *Callana*, there to be cast into bars of one hundred pounds weight, to be stamped, and charged with certain imposts. The value of silver in Cerro de Pasco varies from seven to eight dollars per mark. The standard value in Lima is eight dollars and a half.

It is impossible to form anything like an accurate estimate of the yearly produce of the mines of Cerro de Pasco; for a vast quantity of silver is never taken to the Callana, but is smuggled to the coast, and from thence shipped for Europe. In the year 1838, no less than 85,000 marks of contraband silver were conveyed to the sea port of Huacho, and safely shipped on board a schooner. The quantity of silver annually smelted and stamped in the Callana is from two to three hundred thousand marks—seldom exceeding the latter amount. From 1784 to 1820, 1826, and 1827, the amount was 8,051,409 marks; in the year 1784 it was 68,208 marks; and in 1785, 73,455 marks. During seventeen years it was under 200,000 marks; and only during three years above 300,000. The produce of the mines is exceedingly fluctuating. The successive revolutions which have agitated the country have tended very considerably to check mining operations. On the overthrow of Santa Cruz, Don Miguel Otero, the most active and intelligent mino owner of Cerro de Pasco, was banished; an event which had a very depressing influence on all the mining transactions of that part of

* *Huachacas* are the portions of ore which are distributed among the Indians at the time of the *boyas*, instead of their wages being paid in money.

South America. Within the last few years, however, mining has received a new impetus, and attention has been directed to the adoption of a more speedy and less expensive system of amalgamation.

As a place of residence Cerro de Pasco is exceedingly disagreeable; nothing but the pursuit of wealth can reconcile any one to a long abode in it. The climate, like that of the higher Puna, is cold and stormy. The better sort of houses are well built, and are provided with good English fire-places and chimneys. But however comfortably lodged, the new comer cannot easily reconcile himself to the reflection that the earth is hollow beneath his feet. Still less agreeable is it to be awakened in the night by the incessant hammering of the Indian miners. Luckily earthquakes are of rare occurrence in those parts: it would require no very violent shock to bury the whole city in the bosom of the earth.

Silver being the only produce of the soil, the necessaries of life are all exceedingly dear in the Cerro, as they have to be brought from distant places. The warehouses are, it is true, always plentifully supplied even with the choicest luxuries; but the extortion of venders and the abundance of money render prices most exorbitant. The market is so well supplied with provisions that it may vie with that of Lima. The products of the coast, of the table-lands and the forests, are all to be procured in the market of Cerro de Pasco; but the price demanded for every article is invariably more than double its worth. House rents are also extravagantly high; and the keep of horses is exceedingly expensive.

The population of Cerro de Pasco presents a motley assemblage of human beings, such as one would scarcely expect to find in a city situated at 14,000 feet above the sea, and encircled by wild mountains. The Old and the New Worlds seem there to have joined hands, and there is scarcely any nation of Europe or America that has not its representative in Cerro de Pasco. The Swede and the Sicilian, the Canadian and the Argentinian, are all united here at one point, and for one object. The inhabitants of this city may be ranked in two divisions, viz., traders and *miners—taking* both terms in their most comprehensive

sense. The mercantile population consists chiefly of Europeans or white Creoles, particularly those who are owners of large magazines. The keepers of coffee houses and brandy shops are here, as in Lima, chiefly Italians from Genoa. Other shops are kept by the Mestizos, and the provision-dealers are chiefly Indians, who bring their supplies from remote places.

The mining population may be divided into mine owners (*mineros*) and Indian laborers. The majority of the mineros are descendants of the old Spanish families, who, at an early period, became possessors of the mines, whence they derived enormous wealth, which most of them dissipated in prodigal extravagance. At the present time, only a very few of the mineros are rich enough to defray, from their own resources, the vast expense attending the operations of mining. They consequently raise the required money by loans from the capitalists of Lima, who require interest of 100 or 120 per cent., and, moreover, insist on having bars of silver at a price below standard value. To these hard conditions, together with the custom that has been forced upon the miners of paying their laborers in metal, at times when it is very abundant, may be traced the cause of the miserable system of mine-working practised in Cerro de Pasco. To liquidate his burthensome debts the minero makes his laborers dig as much ore as possible from the mine, without any precautions being taken to guard against accidents. The money-lenders, on the other hand, have no other security for the recovery of their re-payment than the promise of the minero, and a failure of the usual produce of a mine exposes them to the risk of losing the money they have advanced.

Under these circumstances it can scarcely be expected that the character and habits of the minero should qualify him to take a high rank in the social scale. His insatiable thirst for wealth continually prompts him to embark in new enterprises, whereby he frequently loses in one what he gains in another. After a mine has been worked without gain for a series of years, an unexpected *boya* probably occurs, and an immense quantity of silver may be extracted. But a minero retiring on the proceeds of a boya is an event of rare occurrence. A vain hope of *increasing fortune* prompts him to risk the certain for the uncer-

tain: and the result frequently is, that the once prosperous minero has nothing to bequeath to his children but a mine heavily burthened with debt. The persevering ardor of persons engaged in mining is truly remarkable. Unchecked by disappointment, they pursue the career in which they have embarked. Even when ruin appears inevitable, the love of money subdues the warnings of reason, and hope conjures up, from year to year, visionary pictures of riches yet to come.

Joined to this infatuated pursuit of the career once entered on, an inordinate passion for cards and dice contributes to ruin many of the mineros of Cerro de Pasco. In few other places are such vast sums staked at the gaming-table; for the superabundance of silver feeds that national vice of the Spaniards and their descendants. From the earliest hours of morning cards and dice are in requisition. The mine owner leaves his silver stores, and the shop-keeper forsakes his counter, to pass a few hours every day at the gaming-table; and card-playing is the only amusement in the best houses of the town. The mayordomos, after being engaged in the mines throughout the whole day, assemble with their comrades in the evening, round the gaming-table, from which they often do not rise until six in the morning, when the bell summons them to resume their subterraneous occupations. They not unfrequently gamble away their share of a boya before any indication of one is discernible in the mine.

The working class of miners is composed of Indians, who throng to Cerro de Pasco from all the provinces, far and near, especially when boyas are expected. At times, when the mines are not very productive, the number of Indian laborers amounts to between three and four thousand; but when there is a great supply of metal, the ordinary number of mine-workers is more than tripled. The Indians labor with a degree of patient industry, which it would be vain to expect from European workmen similarly circumstanced. This observation applies to the hapires in particular. Content with wretched food, and still more wretched lodging, the hapire goes through his hard day's work, partaking of no refreshment but coca, and at the end of the week (deduction being made for the food, &c., obtained on credit from the minero), he, possibly, finds himself in possession of a dollar.

This sum he spends on his Sunday holiday in chicha and brandy, of which he takes as much as his money will pay for, or as he can get on credit. When excited by strong drinks, such as maize beer, chicha, and brandy, to which they are very much addicted, the Indian miners are exceedingly quarrelsome. The laborers belonging to the different mines go about the streets rioting and attacking each other, and they frequently get involved in dangerous affrays. No Sunday or Friday passes over without the occurrence of battles, in which knives, sticks, and stones are used as weapons; and the actors in these scenes of violence inflict on each other severe and often fatal wounds. Any effective police interference to quell these street riots, is out of the question.

When an unusually abundant produce of the mines throws extra payment into the hands of the mine laborers, they squander their money with the most absurd extravagance, and they are excellent customers to the European dealers in dress and other articles of luxury. Prompted by a ludicrous spirit of imitation, the Indian, in his fits of drunkenness, will purchase costly things which he can have no possible use for, and which he becomes weary of, after an hour's possession. I once saw an Indian purchase a cloak of fine cloth, for which he paid ninety-two dollars. He then repaired to a neighboring pulperia,* where he drank till he became intoxicated, and then, staggering into the street, he fell down, and rolled in the kennel. On rising, and discovering that his cloak was besmeared with mud, he threw it off, and left it in the street, for any one who might choose to pick it up. Such acts of reckless prodigality are of daily occurrence. A watchmaker in Cerro de Pasco informed me that one day an Indian came to his shop to purchase a gold watch. He showed him one, observing that the price was twelve gold ounces (204 dollars), and that it would probably be too dear for him. The Cholo paid the money, and took the watch; then, after having examined it for a few minutes, he dashed it on the ground, observing that the thing was of no use to him. When the Indian miner possesses money, he never thinks of laying by a part of it, as neither he

*A shop in which chicha, brandy, &c., are vended.

nor any of his family feel the least ambition to improve their miserable way of life. With them, drinking is the highest of all gratifications, and in the enjoyment of the present moment, they lose sight of all considerations for the future. Even those Cholos who come from distant parts of the country to share in the rich harvest of the mines of Cerro de Pasco, return to their homes as poor as when they left them, and with manners and morals vastly deteriorated.

Besides the mines of Cerro de Pasco, which in point of importance are nowise inferior to those of Potosi, there are numerous very rich mining districts in Peru. Among the most prolific may be ranked the provinces of Pataz, Huamanchuco, Caxamarca, and Hualgayoc. In this last-named province is situated the Cerro de San Fernando, on which Alexander Von Humboldt has conferred so much celebrity. The rich silver veins were discovered there in the year 1771; and there are now upwards of 1400 bocaminas. On the insulated mountain the veins of metal intersect each other in every direction, and they are alike remarkable for being easily worked and exceedingly prolific. The mines of Huantaxaya, situated on the coast in the neighborhood of Iquique, were also very rich, and the silver obtained from them was either pure or containing a very slight admixture of foreign substances. They yielded an incredible quantity of metal, but they were speedily exhausted; and are now totally barren. The chains of hills in the southern districts of Peru contain a multitude of very rich mines, of which the most remarkable are those of San Antonio de Esquilache, Tamayos, Picotani, Cancharani, and Chupicos; but owing to bad working and defective drainage, many of the veins are in a very ruinous state, and the metal drawn from them bears no proportion to the quantity they contain. The Salcedo mine is very celebrated for the vast abundance of its produce, and the tragical end of its original owner.

Don Jose Salcedo, a poor Spaniard, who dwelt in Puno, was in love with a young Indian girl, whose mother promised, on condition of his marrying her daughter, that she would show him a rich silver mine. Salcedo fulfilled the condition, obtained possession of the mine, and worked it with the greatest success. The report of his wealth soon roused the envy of the Count de

Lemos, then viceroy of Peru, who sought to possess himself of the mine. By his generosity and benevolence Salcedo had become a great favorite with the Indian population, and the viceroy took advantage of this circumstance to accuse him of high treason, on the ground that he was exciting the Indians against the Spanish government. Salcedo was arrested, tried, and condemned to death. Whilst he was in prison, he begged to be permitted to send to Madrid the documents relating to his trial, and to appeal to the mercy of the king. He proposed, if the viceroy would grant his request, that he would pay him the daily tribute of a bar of silver, from the time when the ship left the port of Callao with the documents, until the day of her return. When it is recollected that at that period the voyage from Callao to Spain occupied from twelve to sixteen months, some idea may be formed of the enormous wealth of Salcedo and his mine. The viceroy rejected this proposition, ordered Salcedo to be hanged, and set out for Puno to take possession of the mine.*

But this cruel and unjust proceeding failed in the attainment of its object. As soon as Salcedo's death-doom was pronounced, his mother-in-law, accompanied by a number of relations and friends, repaired to the mine, flooded it with water, destroyed the works, and closed up the entrance so effectually that it was impossible to trace it out. They then dispersed; but some of them, who were afterwards captured, could not be induced, either by promises or tortures, to reveal the position of the mouth of the mine, which to this day remains undiscovered. All that is known about it is that it was situated in the neighborhood of Cerro de Laycacota and Cananchari.

Another extraordinary example of the productiveness of the Peruvian mines, is found at San Jose, in the department of Huancavelica. The owner of the mines of San Jose requested the viceroy Castro, whose friend he was, to become godfather to his first child. The viceroy consented, but at the time fixed for the christening, some important affair of state prevented him from quitting the capital, and he sent the vice-queen to officiate as his proxy. To render honor to his illustrious guest, the owner of the

* The date of Salcedo's death was May, 1669.

San Jose mines laid down a triple row of silver bars along the whole way (and it was no very short distance), from his house to church. Over this silver pavement the vice-queen accompanied the infant to the church, where it was baptized. On her return, her munificent host presented to her the whole of the silver road, in token of his gratitude for the honor she had conferred on him. Since that time, the mines and the province in which they are situated have borne the name of Castrovireyna. In most of these mines the works have been discontinued. Owing to defective arrangements, one of the richest of these mines fell in, and 122 workmen were buried in the ruins. Since that catastrophe, the Indians refuse to enter the mines. Many stories are related of spirits and apparitions said to haunt the mines of Castrovireyna. I was surprised to hear these tales, for the imagination of the Indian miners is not very fertile in the creation of this sort of superstitious terrors.

Notwithstanding the enormous amount of wealth, which the mines of Peru have already yielded, and still continue to yield, only a very small portion of the silver veins has been worked. It is a well-known fact, that the Indians are aware of the existence of many rich mines, the situation of which they will never disclose to the whites, nor to the detested mestizos. Heretofore mining has been to them all toil and little profit, and it has bound them in chains from which they will not easily emancipate themselves. For centuries past, the knowledge of some of the richest silver mines has been with inviolable secresy transmitted from father to son. All endeavors to prevail on them to divulge these secrets have hitherto been fruitless. In the village of Huancayo, there lived, a few years ago, two brothers, Don Jose and Don Pedro Yriarte, two of the most eminent mineros of Peru. Having obtained certain intelligence that in the neighboring mountains there existed some veins of pure silver, they sent a young man, their agent, to endeavor to gain further information on the subject. The agent took up his abode in the cottage of a shepherd, to whom, however, he gave not the slightest intimation of the object of his mission. After a little time, an attachment arose between the young man and the shepherd's daughter, and the girl *promised to disclose* to her lover the position of a very

rich mine. On a certain day, when she was going out to tend her sheep, she told him to follow her at a distance, and to notice the spot where she would let fall her *manta;* by turning up the earth on that spot, she assured him he would find the mouth of a mine. The young man did as he was directed, and after digging for a little time, he discovered a mine of considerable depth, containing rich ore. Whilst busily engaged in breaking out the metal, he was joined by the girl's father, who expressed himself delighted at the discovery, and offered to assist him. After they had been at work for some hours, the old Indian handed to his companion a cup of chicha, which the young man thankfully accepted. But he had no sooner tasted the liquor than he felt ill, and he soon became convinced that poison had been mixed with the beverage. He snatched up the bag containing the metal he had collected, mounted his horse, and with the utmost speed galloped off to Huancayo. There, he related to Yriarte all that had occurred, described as accurately as he could the situation of the mine, and died on the following night. Active measures were immediately set on foot, to trace out the mine, but without effect. The Indian and all his family had disappeared, and the mine was never discovered.

In Huancayo there also dwelt a Franciscan monk. He was an inveterate gamester, and was involved in pecuniary embarrassments. The Indians in the neighborhood of his dwelling-place were much attached to him, and frequently sent him presents of poultry, cheese, butter, &c. One day, after he had been a loser at the gaming-table, he complained bitterly of his misfortunes to an Indian, who was his particular friend. After some deliberation, the Indian observed, that possibly he could render him some assistance; and, accordingly, on the following evening, he brought him a large bag full of rich silver ore. This present was several times repeated; but the monk, not satisfied, pressed the Indian to show him the mine from whence the treasure was drawn. The Indian consented, and on an appointed night he came, accompanied by two of his comrades, to the dwelling of the Franciscan. They blindfolded him, and each in turn carried him on his shoulders to a distance of several *leagues, into* the mountain passes. At length they set him down,

and the bandage being removed from his eyes, he discovered that he was in a small and somewhat shallow shaft, and was surrounded by bright masses of silver. He was allowed to take as much as he could carry, and when laden with the rich prize, he was again blindfolded, and conveyed home in the same manner as he had been brought to the mine. Whilst the Indians were conducting him home, he hit on the following stratagem. He unfastened his rosary, and here and there dropped one of the beads, hoping by this means to be enabled to trace his way back on the following day; but in the course of a couple of hours his Indian friend again knocked at his door, and presenting to him a handful of beads, said, "Father, you dropped your rosary on the way, and I have picked it up."

When I was in Jauja, in the year 1841, an Indian whom I had previously known, from his having accompanied me on one of my journeys in the Sierra, came to me and asked me to lend him a crow-bar. I did so, and after a few days, when he returned it, I observed that the end was covered with silver. Some time afterwards I learned that this Indian had been imprisoned by order of the sub-prefect, because he had offered for sale some very rich silver ore, and on being questioned as to where he had obtained it, his answer was that he found it on the road; a tale, the truth of which was very naturally doubted. The following year, when I was again in Jauja, the Indian paid me another visit. He then informed me that he had been for several months confined in a dark dungeon and half-starved, because the sub-prefect wanted to compel him to reveal the situation of a mine which he knew of, but that he would not disclose the secret, and adhered firmly to the statement he had made of having found the ore. After a little further conversation, he became more communicative than I had any reason to expect, though he was fully convinced I would not betray him. He confessed to me that he actually knew of a large vein containing valuable silver, of which he showed me a specimen. He further told me that it was only when he was much in want of money that he had recourse to the mine, of which the shaft was not very deep; and, moreover, that after closing it up, he always carried the loose *rubbish away to a distance* of some miles, and then covered the

opening so carefully with turf and cactus, that it was impossible for any one to discern it. This Indian dwelt in a miserable hut, about three leagues from Jauja, and his occupation was making wooden stirrups, which employment scarcely enabled him to earn a scanty subsistence. He assured me it was only when he was called upon to pay contributions, which the government exacts with merciless rigor, that he had recourse to the mine. He then extracted about half an aroba of ore, and sold it in Jauja, in order to pay the tax levied on him.

I could quote many well-authenticated instances of the same kind; but the above examples sufficiently prove the reluctance of the Indians to disclose the secret of their hidden treasures, and their indifference about obtaining wealth for themselves. It is true that the Indians are not, in all parts of the country, so resolutely reserved as they are in Huancayo and Jauja, for all the most important mines have been made known to the Spaniards by the natives. But the Peruvian Indians are composed of many different races, and though all were united by the Incas into one nation, yet they still differ from each other in manners and character. The sentiment of hatred towards the whites and their descendants has not been kept up in an equal degree among them all. In proportion as some are friendly and social with the Creoles, others are reserved and distrustful. In general, the Indians regard with unfriendly feelings those whites who seek to trace out new mines; for they cherish a bitter recollection of the fate of Huari Capcha, the discoverer of the mines of Cerro de Pasco, who, it is said, was thrown into a dungeon by the Spaniard, Ugarte, and ended his days in captivity. I have not met with any proofs of the authenticity of this story, but I frequently heard it related by the Indians, who referred to it as their justification for withholding from the whites any directions for finding mines.

But to return to Cerro de Pasco. That city has, by its wealth, become one of the most important in the Peruvian Republic; and under improved legislation, and a judicious mining system, it might be rendered still more prosperous and fully deserving of its title of "Treasury of Peru." Though from its situation Cerro de Pasco is cut off from the principal lines of communication with

other parts of Peru, yet the city is itself the central point of four roads, on which there is considerable traffic. Westward runs the road to Lima, through the Quebrada of Canta, by which all the silver that is not contraband is transported to the capital. The silver, when melted into bars, is consigned to the care of the mule-drivers, merely on their giving a receipt for it; and in this manner they are sometimes entrusted with loads of the value of several hundred thousand dollars, which they convey to Lima unattended by any guards or escort. There is, however, no danger of their being plundered; for the robbers do not take the stamped bars of silver. The silver specie, on the other hand, which is sent from Lima, is escorted by a military guard as far as Llanga or Santa Rosa de Quibe. The escort is not, however, very adequate to resist the highway robbers, consisting of numerous bands of armed negroes. On the east is the road running through the Quebrada de Huarriaca to the town of Huanuco and the Huallaga Forests. The road on the north of Cerro de Pasco leads to the village of Huanuco el Viejo, one of the most remarkable places of Peru, being full of interesting ruins of the time of the Incas. From Huanuco the road leads to Huaraz, and from thence to the north coast. The south road passes over the level heights to Tarma, Jauja, and the other southern provinces.

From the village of Pasco two roads diverge, the one leading to Lima, the other to Tarma. The former crosses the Pampa of Bombon and the Diezmo, and continues onward to the Pass of La Viuda. The latter leads by way of the Tambo Ninacaca, and the village of Carhuamayo* to Junin, passing near a very large lake, situated at the height of 13,000 feet above the sea. This lake is the Laguna de Chinchaycocha,† which is twelve leagues long, and at its utmost breadth measures two leagues and a half. It is the largest of the South American lakes, next to the Laguna de Titicaca, which is eighty-four English miles long and forty-one broad. As the lake of Chinchaycocha loses by various outlets much more water than it receives from its tributary sources, it is evident that it must be fed by subterraneous springs. Its marshy banks are overgrown by totora (*Malacochæte Totora*), and

* Ninacaca is 12,853 feet, and Carhuamayo 13,087 feet above the sea level.

† *It is also called the* Laguna de Reyes, and the Laguna de Junin.

are inhabited by numerous water fowl. The Indians entertain a superstitious belief that this lake is haunted by huge, fish-like animals, who at certain hours of the night leave their watery abode to prowl about the adjacent pasture lands, where they commit great havoc among the cattle. The southwestern end of the lake is intersected by a marshy piece of ground, interspersed with stones, called the Calzada, which forms a communication between the two banks of the lake. At the distance of about half a league from the lake is a village, which, under the Spanish domination, was called Reyes. Adjacent to it is the celebrated Pampa of Junin, which, on the 24th of August, 1824, was the scene of a battle between the Spanish forces, commanded by General Canterac, and the insurgents, headed by Don Simon Bolivar. The result of this battle had an important influence on the destiny of Peru. It is generally believed that treachery in the Spanish army threw the victory into the hands of the insurgents. A few days prior to the battle Bolivar is said to have received, from the Spanish camp, a letter in cypher, which he transmitted for explanation to his minister, Monteagudo, in Cerro de Pasco. The answer received from the minister was, that the letter recommended Bolivar to attack the enemy without a moment's delay, for that on the part of the Spaniards the victory was insured to him. The bearer of the letter is still living, and he does not deny that he was in the secret of the whole plot. The insurgents were victorious, and in commemoration of their triumph they gave to the village of Reyes, and to the whole province, the name of Junin, calling them after the plain on which the battle was fought.

From Junin, the road runs to the distance of eight leagues across a difficult level height, to Cacas, a hamlet containing only a few huts. From thence, it is continued three leagues further, through several narrow Quebradas, and finally terminates in the beautiful valley of Tarma.

Many of the Indians in the neighborhood of Cerro de Pasco, especially those who dwell in the Puna, in the direction of Cacas, infest the roads for the purpose of plunder. They conceal themselves behind the rocks, where they lie in wait for travellers, whom *they severely* wound, and sometimes even kill, by stones hurled

from their slings. When great boyas occur in the mines of the Cerro, these roads are so unsafe that it is not prudent to travel, except in well-armed parties. The solitary traveller who seeks a night's lodging in one of the Puna huts, exposes himself to great peril; for the host not unfrequently assassinates his sleeping guest. Nor is there much greater security in villages, such as Junin and Carhuamayo. Only a few years ago, the bodies of three travellers were found in the house of the Alcalde of Junin, the principal authority in the village. The travellers had sought shelter for the night, and were inhumanly murdered. Every year persons known to have been travelling in these parts, mysteriously disappear, and there is every reason to believe they have been murdered by the Indians. Many of these Indians are mine laborers, who, for their incorrigible turpitude, have been banished from the Cerro, and who live by pillage.

I will close this chapter with a brief description of four-and-twenty hours which I passed during a journey in the wildest part of the Puna region.

On the 12th of January, 1840, having passed the night in the hut of a Puna shepherd, I awoke next morning at day-break. The sun was just beginning to cast a light tinge of red on the snow-capped tops of the Cordillera. Through the aperture in the roof of the hut, which served the purpose of a chimney, there penetrated a feeble light, just sufficient to show the misery and poverty that prevailed in the interior of the habitation. I rose from the resting-place on which, only a few hours previously, I had stretched myself exhausted by cold and fatigue, and raising the cow-hide, which closed the doorway of the hut, I crept out to make preparations for the continuance of my journey.

I saddled my mule, and put into one of the saddle-bags a small supply of food. Whilst I was thus engaged, one of those fierce little dogs which are domiciled in every Indian hut, slily watched my movements; and though he had rested at the foot of my bed during the night, yet he was only prevented, by the repeated threats of his master, from making an attack upon me. My Indian host handed me my gun; I paid for my night's lodging by a few reals and some paper cigars; and having asked him to di-

rect me on my way, I rode off whilst he was expressing his gratitude, and his kind wishes in the words, "*Dios lo pague!*"

The sky was overhung by a thick mist, and the snow which had fallen during the night covered the ground as far as the eye could reach. On my way I met an old Indian woman driving her sheep. The bleating flock moved slowly on, leaving a deep furrow in the snow, and seeming impatient till the genial sun should dispel the mist and dissolve the white covering which overspread their scanty pasture. A little further on I met the son of this same Indian shepherdess. He and his dog were busily engaged in catching partridges, destined to be sold on the following Sunday, in the nearest village.

My road lay along a gentle acclivity, interspersed with rocks and swamps, which often obliged me to make wide detours. The swamps (or as the natives call them, *Attoladeros*) are dangerous enemies to travellers in the Puna, who, with their horses and mules, sometimes sink into them and perish. Even in the most open parts of the country it is not easy to discern the swamps, and the ground often sinks beneath the rider where he least expects it. At length the sun began to disperse the mist, and the snow gradually melted beneath his burning rays. Inspired with new vigor, I took a survey of the wild solitude around me. I was now on one of the level heights, about 14,000 feet above the sea. On both sides arose the high Cordillera summits crowned with eternal ice; detached peaks here and there towering to the skies. Behind me lay, deep and deeper, the dark valleys of the lower mountain regions, which, with the scarcely discernible Indian villages, receded in the distance, till they blended with the line of the horizon. Before me stretched the immeasurable extent of the level heights, at intervals broken by ridges of hills. It seemed as though here, in the snow plains of the Cordillera, Nature had breathed out her last breath. Here life and death meet together as it were to maintain the eternal struggle between being and annihilation.

How little life had the sun yet wakened around me! The dull yellow Puna grass, scarcely the length of one's finger, blended its tint with the greenish hue of the glaciers. Advancing further on my onward course, how joyfully I greeted as

old acquaintance the purple gentiana and the brown calceolaria! With what pleasure I counted the yellow blossoms of the echinocactus! and presently the sight of the ananas-cactus pictured in my mind all the luxuriance of the primeval forests. These cacti were growing amidst rushes and mosses and syngeneses, which the frost had changed to a rusty brown hue. Not a butterfly fluttered in the rarefied atmosphere; no fly nor winged insect of any kind was discernible. A beetle or a toad creeping from their holes, or a lizard warming himself in the sun, are all that reward the search of the naturalist.

As I journeyed onward, animate life awakened in rich variety around me. Birds, few in species, but numerous in individuals, everywhere met my view. Herds of vicuñas approached me with curious gaze, and then on a sudden fled with the swiftness of the wind. In the distance I observed stately groups of huanacus turning cautiously to look at me, and then passing on. The Puna stag (*tarush*) slowly advanced from his lair in the mountain recesses, and fixed on me his large, black, wondering eyes; whilst the nimble rock rabbits (*viscachas*) playfully disported and nibbled the scanty herbage growing in the mountain crevices.

I had wandered for some hours admiring the varieties of life in this peculiar alpine region, when I stumbled against a dead mule. The poor animal had probably sunk beneath his burthen, and had been left by his driver to perish of cold and hunger. My presence startled three voracious condors, which were feeding on the dead carcass. These kings of the air proudly shook their crowned heads, and darted at me furious glances with their blood-red eyes. Two of them rose on their giant wings, and in narrowing circles hovered threateningly above my head, whilst the third, croaking fiercely, kept guard over the booty. I cocked my gun in readiness for defence, and cautiously rode past the menacing group, without the least desire of further disturbing their banquet. These condors were the only hostile animals I encoun tered in this part of the Puna.

It was now two o'clock in the afternoon, and I had ridden on a continuous though gradual ascent since sunrise. My panting mule slackened his pace, and seemed unwilling to mount a rather

steep ascent which we had now arrived at. To relieve him I dismounted, and began walking at a rapid pace. But I soon felt the influence of the rarefied atmosphere, and I experienced an oppressive sensation which I had never known before. I stood still for a few moments to recover myself, and then tried to advance; but an indescribable oppression overcame me. My heart throbbed audibly; my breathing was short and interrupted. A world's weight seemed to lie upon my chest; my lips swelled and burst; the capillary vessels of my eyelids gave way, and blood flowed from them. In a few moments my senses began to leave me. I could neither see, hear, nor feel distinctly. A grey mist floated before my eyes, and I felt myself involved in that struggle between life and death which, a short time before, I fancied I could discern on the face of nature. Had all the riches of earth, or the glories of heaven, awaited me a hundred feet higher, I could not have stretched out my hand towards them.

In this half senseless state I lay stretched on the ground, until I felt sufficiently recovered to remount my mule. One of the Puna storms was now gathering, thunder and lightning accompanied a heavy fall of snow, which very soon lay a foot deep on the ground. In a short time I discovered that I had missed my way. Had I then known the Puna as well as I afterwards did, I should have shaped my course by the flight of birds. But unluckily I pursued the fresh track of a herd of vicuñas, which led me directly into a swamp. My mule sank, and was unable to extricate himself. I was almost in despair. Nevertheless, I cautiously alighted, and with incredible difficulty I succeeded in digging out with a dagger the mud in which the animal's legs were firmly fixed, and at length I got him back to a solid footing. After wandering about in various directions, I at length recovered the right path, which was marked by numerous skeletons protruding above the snow. These were the remains of beasts of burthen, which had perished on their journeys; a welcome, though an ominous guide to the wandering traveller. The clouds now suddenly separated, and the blazing light of the tropical sun glared dazzlingly on the white plain of snow. In a moment I felt my eyes stricken with *surumpe*.

Suffering the most violent pain, and tormented by the appre-

hension of blindness, I with great difficulty pursued my way. My mule could scarcely wade through the sward, which was becoming more and more thick; and night was advancing. I had lost all feeling in my feet, my benumbed fingers could scarcely hold the bridle, and I well knew that the nearest point at which I could obtain the shelter of a human habitation was eight German miles distant. I was beginning to give myself up for lost, when I observed a cave beneath an overhanging rock. Mother Nature, in whose service I had undertaken my long and perilous wanderings, at that critical juncture, provided for me a retreat, though in one of her rudest sheltering places. I entered the cave, which protected me securely against the wind and the snow. Having unsaddled my mule, I made a bed of my saddle clothes and poncho. I tied the animal to a stone, and whilst he eagerly regaled himself with the little grass that was not buried beneath the snow, I satisfied my hunger with some roasted maize and cheese.

Exhausted by the fatigue of the day, I lay down to sleep; but no sooner had I fallen into a slumber, than I was awaked by a violent smarting in my eyes, occasioned by the *surumpe*. There was no longer any hope of sleep. The night seemed endless. When the dawn of morning appeared, I made an effort to open my eyes, which were closed with coagulated blood. On looking around me I beheld all the horror of my situation. A human corpse had served for my pillow. Shuddering I went in search of my mule, for I was eager to hurry from this dismal spot; but my misery was not yet at an end. The poor beast lay dead on the ground; in his ravenous hunger he had eaten of the poisonous *garbancillo*. What could I do! In despair I turned back to the cave.

The sun had now fully risen, and his genial rays diffused warmth over this frozen region. Somewhat roused by the reviving light and life around me, I began to examine the body of my lifeless companion. Haply, thought I, he may be one of my own race; a traveller who has perished of cold and hunger. No. He was a half-caste Indian, and many deadly wounds on his head showed that he had died of the slings of Indian robbers,

who had stripped him even of his clothes, and concealed the body in the cave.

I seized my gun and shot a rock rabbit, then collecting some fuel, I kindled a fire, and roasted the little animal, which afforded me a no very savory breakfast. I then waited patiently in the hope that some timely help would deliver me from my dreary situation.

It was about noon. I heard a monotonous short cry. With joy I recognized the well-known sound. I climbed up the nearest rock, and looking down into a hollow, I perceived two Indians whom I had seen the day before, driving their llamas to the nearest mine works. I prevailed on them, by the gift of a little tobacco, to let me have one of their llamas to carry my luggage, and having strewed a few handfuls of earth on the corpse of the murdered man, I departed. The scene of the incidents above described was the Cave of Leñas, in the Altos which lead southward to the Quebrada of Huaitara.

CHAPTER XIII.

The Sierra—Its Climate and Productions—Inhabitants—Trade—Eggs circulated as money—Mestizos in the Sierra—Their Idleness and Love of Gaming and Betting—Agriculture—The Quinua Plant, a substitute for Potatoes—Growth of Vegetables and Fruits in the Sierra—Rural Festivals at the Seasons of Sowing and Reaping—Skill of the Indians in various Handicrafts—Excess of Brandy-Drinking—Chicha—Disgusting mode of making it—Festivals of Saints—Dances and Bull-Fights—Celebration of Christmas-Day, New-Year's Day, Palm Sunday, and Good Friday—Contributions levied on the Indians—Tardy and Irregular Transmission of Letters—Trade in Mules—General Style of Building in the Towns and Villages of the Sierra—Ceja de la Montaña.

THE Peruvian highlands, or level heights, described in a previous chapter under the designation of the Puna, are intersected by numerous valleys situated several thousand feet lower than the level heights, from which they totally differ in character and aspect. These valleys are called the Sierra. The inhabitants of Lima usually comprehend under the term Sierra, the whole interior of Peru, and every Indian who is not an inhabitant of the coast, or of the forest regions, is called by them a *Serrano*. But strictly speaking, the Sierra includes only the valleys between the Cordillera and the Andes, and I shall here use the term in its more limited and proper sense.

In the Sierra there are only two seasons throughout the year. The winter or rainy season commences in October; but the rains are neither so heavy nor so continuous as in the forest districts. The falls of rain seldom last longer than two or three days in succession. Storms of thunder and lightning are very frequent in the Sierra; they are not accompanied by snow as in the Puna, but often by hail. The thermometer never falls below + 4° R., and during the daytime it is on the average at + 11° R. *In April the* summer season sets in, bringing with it an

uninterrupted succession of warm bright days. The nights in summer are colder than in winter. In a summer night the thermometer will sometimes fall below freezing point, and the cold is often very severe. About noon the heat is oppressive, though the average heat of the day does not exceed 13, 9° R. During the summer season the horizon is frequently obscured by heavy dark clouds, which seldom break over the valleys, but continue frowning over the hills. The natives call these portentous clouds *Misti Manchari* (terror of the whites),* because the inhabitants of the coast always regard them as indicative of stormy weather.

The climate of the Sierra favors the natural fruitfulness of the soil, which richly repays the labor of the husbandman; but plants, peculiar to the warm tropical regions, do not thrive well here. Prior to the European emigration to Peru, only maize, quinua (*Chenopodium Quinoa*, L.), and a few tuberous roots were grown in the Sierra; but since the Spanish conquest, the European cereals, lucerne, and various kinds of vegetables are cultivated with perfect success. But the eye of the traveller seeks in vain for those stately forests which clothe the mountainous districts of Europe; the barren acclivities afford nurture only for the agave-tree, and some very large species of cactus. Groups of willow trees (*Salix Humboldtii*), which attain the height of about twenty or twenty-five feet, together with the quinua-tree, form here and there little thickets on the banks of rivers.

These regions, so favored by nature, have from the earliest period been the chosen dwelling-places of the Peruvians; and therefore in the Sierra, which, measured by its superficies, is not of very great extent, the population has increased more than in any other part of Peru. The valleys already contain numerous towns, villages, and hamlets, which would rise in importance, if they had greater facility of communication one with another. But they are surrounded on all sides by mountains, which can be crossed only by circuitous and dangerous routes. The few

* The Indians apply the designation *Misti*, meaning *Mestizo*, to all *persons* except Indians or Negroes, whether they be Europeans or White *Creoles*.

accessible pathways are alternately up rugged ascents, and down steep declivities; or winding through narrow ravines, nearly choked up by broken fragments of rock, they lead to the dreary and barren level heights.

The Serranos, or inhabitants of the Sierra, especially those who dwell in the smaller villages, are chiefly Indians. In the towns and larger villages, the mestizos are numerous. The whites are very thinly scattered over the Sierra; but many of the mestizos are very anxious to be thought white Creoles. A rich serrano, who bears in his features the stamp of his Indian descent, will frequently try to pass himself off to a foreigner for an old Spaniard. Here, even more than on the coast, the mestizo is ambitious to rank himself on a level with the white, whilst he affects to regard the Indian as an inferior being.

The few Spaniards who reside in the Sierra are men who have served in the Spanish army, and who, at the close of the war of independence, settled in that part of Peru. Many of them keep shops in the towns and villages, and others, by advantageous marriages, have become the possessors of haciendas. Those who have enriched themselves in this way are remarkable alike for ignorance and pride, and give themselves the most ludicrous airs of assumed dignity. The Creoles are the principal dealers in articles of European commerce. They journey to Lima twice or thrice a year to make their purchases, which consist in white and printed calicoes, woollen cloths, hard-wares, leather, soap, wax, and indigo. In the Sierra, indigo is a very considerable article of traffic: the Indians use a great quantity of it for dyeing their clothes; blue being their favorite color. Wax is also in great demand; for in the religious ceremonies, which are almost of daily occurrence, a vast quantity of tapers is consumed. The principal articles of traffic produced by the natives are woollen ponchos and blankets, unspun colored wool, saddle-cloths, stirrups and horseshoes. The last-named articles are purchased chiefly by the arrieros of the coast. It may seem strange that stores of horseshoes should be kept ready made; but so it is; for though in Europe we make the shoe to fit the hoof, yet in Peru it is the practice to cut the hoof to fit the shoe. On Yca brandy more money is expended than on every

other article of trade combined. The quantity of that spirit annually transported to the Sierra exceeds belief. To see the Indians on Sundays and festival days thronging to the shops of the spirit dealers, with their jugs and bottles, one might fairly presume that more brandy is drunk in the Sierra in one day, than in many of the towns of Europe in a year. In some parts —for example, in the province of Jauja—hens' eggs are circulated as small coin, forty-eight or fifty being counted for a dollar. In the market-place and in the shops the Indians make most of their purchases with this brittle sort of money: one will give two or three eggs for brandy, another for indigo, and a third for cigars. These eggs are packed in boxes by the shop-keepers, and sent to Lima. From Jauja alone, several thousand loads of eggs are annually forwarded to the capital.

Most of the mestizos possess little estates (*chacras*), the produce of which, consisting of grain, vegetables and clover, is disposed of in the towns of the Sierra, or in the mining districts of the Puna. As the profits arising from the chacras usually suffice to provide their owners with a comfortable subsistence, the mestizos pass their lives in idleness and pleasure. They spend the chief portion of the day in the true Spanish style, gossiping in groups in the streets, and wrapped in their mantles. When the state of the weather does not admit of this sort of out-door lounging the time is passed in gaming or cock-fighting. This latter diversion is no less in favor in the Sierra than in Lima. Such enormous bets are laid at these cock-fights, that the losses frequently entail ruin on persons of tolerably good fortune.

The agriculture of the Sierra is wholly consigned to the Indians, who either cultivate their own lands, or for very poor wages labor for the mestizos. In September, the ground is ploughed and prepared for sowing, which operation is performed in October, and the reaping takes place in April or May. By this means the seed is left in the ground throughout all the rainy season. In February violent frost frequently comes on during the night, by which the seed is so much injured that the harvest fails, and the scarcity occasions severe suffering and even famine. When the cold clear nights create apprehensions of damage to the seed, the people form themselves into processions, and go

through the villages and towns imploring the mercy of Heaven. In the dead of the night it is no unusual thing to be aroused by the ringing of bells. The inhabitants then get up and hurry to church, where the solemn processions are formed. Penitents clothed in sackcloth go through the streets, scourging themselves; and the Indians, in their native language, utter prayers and offer up vows to Heaven. For the space of some hours an incessant movement and agitation pervade the streets, and when day begins to dawn the people return to their homes, trembling between hope and fear. The fate of the Indians, when their harvest fails them, is indeed truly miserable, for, abstemious as they are, they can scarcely procure wherewith to satisfy their hunger. In the year 1840, which was a period of scarcity, I saw the starving Indian children roaming about the fields, and eating the grass, like cattle.

Maize is the species of grain most extensively cultivated in the Sierra: it is of excellent quality, though smaller than that grown on the coast. Wheat, though it thrives well, is cultivated only in a very limited quantity, and the bread made from it is exceedingly bad. The other species of European grain, barley excepted, are unknown to the Serranos. To compensate for the want of them, they have the quinua (*Chenopodium Quinoa*, L.), which is at once a nutritious, wholesome, and pleasant article of food. The leaves of this plant, before it attains full maturity, are eaten like spinach; but it is the seeds which are most generally used as food. They are prepared in a variety of ways, but most frequently boiled in milk or in broth, and sometimes cooked with cheese and Spanish pepper. The dried stems of the quinua are used as fuel. Experiments in the cultivation of this plant have been tried in some parts of Germany, and with considerable success. It would appear, however, that its flavor is not much liked; a circumstance rather surprising to the traveller who has tasted it in Peru, where it is regarded in the light of a delicacy. It were to be wished that the general cultivation of the quinua could be introduced throughout Europe; for during the prevalence of the potatoe disease this plant would be found of the greatest utility. It is a well-known fact that potatoes and tea, two *articles now in such* universal use, were not liked on their first

introduction into Europe. The quinua plant, which yields a wholesome article of food, would thrive perfectly in our hemisphere, and, though in its hitherto limited trial it has not found favor, there is no reason to conclude that it may not at a future time become an object of general consumption.

Four kinds of tuberous plants are successfully cultivated in the Sierra; viz., the potatoe, the ulluco, the oca, and the mashua. Of potatoes there are several varieties, and all grow in perfection. The ulluco (*Tropæolum tuberosum*) is smaller than the potatoe, and is very various in its form, being either round, oblong, straight, or curved. The skin is thin, and of a reddish-yellow color, and the inside is green. When simply boiled in water it is insipid, but is very savory when cooked as a *picante*. The oca (*Oxalis tuberosa*) is an oval-shaped root; the skin pale red, and the inside white. It is watery, and has a sweetish taste; for which reason it is much liked by the Peruvians. The mashua is the root of a plant as yet unknown to botanists. It is cultivated and cooked in the same manner as those already described. In form, however, it differs from them all. It is of a flat pyramidal shape, and the lower end terminates in a fibrous point. It is watery, and insipid to the taste; but is nevertheless much eaten by the Serranos. As the mashua roots will not keep, they are not transported from the places in which they are grown, and, therefore, are not known in Lima. The Indians use the mashua as a medicine: they consider it an efficacious remedy in cases of dropsy, indigestion, and dysentery.

The vegetables and fruits of Europe thrive luxuriantly in the warm Sierra valleys; yet but few of them have been transplanted thither, and those few are but little esteemed. Some of the cabbage and salad species, together with onions, garlic, and several kinds of pulse, are all that are cultivated. It is remarkable that in these regions no indigenous fruit-trees are to be seen. The only fruit really belonging to the Sierra is the Tuna. In some of the sheltered ravines, or, as they are called, Quebradas, oranges, lemons, and granadillas flourish at the height of 10,000 feet above sea level. The fruits which have been transplanted from Europe are for the most part indifferent, as not the least care is bestowed on their cultivation. The effect of this neglect

is particularly obvious in apples, pears, and damson-plums. Cherries and chestnuts are unknown in these parts; but on the other hand, peaches and apricots (*duraznos*) grow in amazing abundance, and many very fine species are found, especially in the southern provinces. Excursions to the *duraznales* (apricot gardens), in the months of April and May, to eat the ripe fruit fresh plucked from the trees, are among the most favorite recreations of the Serranos. Some of the Sierra districts are celebrated throughout Peru for their abundance of fruit. This luxuriance is particularly remarkable in several of the deep valleys, for instance, in Huanta; but, strictly speaking, these deep valleys partake less of the character of the Sierra than of the higher forest regions.

The periods of sowing and reaping are celebrated by the Indians with merry-making, a custom which has descended from the time of the Incas, when those periods corresponded with the two great divisions of the year. Even a scanty harvest, an event of frequent occurrence, occasions no interruption to these rustic festivals. Bands of music, consisting of trumpets, fiddles, and flutes, play whilst the corn is cut down, and during their work, the laborers freely regale themselves with chicha, huge barrels of which are placed for their unrestrained use. The consequence is, that they are almost continually intoxicated; and yet whilst in this state it is no unusual thing to see them dancing with heavy loads of sheaves on their heads. Their dinner is cooked in the fields, in large pots and kettles, and to partake of it they all sit down on the ground in rows, one behind another. The wheat and barley when cut are spread out in little heaps on the ground, and, instead of thrashing, the grain is pressed out of the ears by the tramping of horses, the animals being driven round and round in a circle. As soon as this process is ended, the agents of the Government and the priests make their appearance to claim the tithes.

In the larger villages and towns of the Sierra, the Indians frequently employ themselves in handicrafts, in some of which they attain a high degree of perfection, for they are not wanting either in talent or in mechanical dexterity. As goldsmiths they are remarkably skilful, and in this branch of industry they produce

work which, for taste and exquisite finish, cannot be excelled in the capitals of Europe. The various kinds of vessels and figures of silver wire (*filigranas*), made by the cholos in Ayacucho, have always been favorite articles of ornament in Spain. The Indians of Jauja are very skilful in working iron, and the objects of their workmanship are much esteemed throughout Peru. Of leather also they make various things in very beautiful style; and saddle-cloths, bridles, &c., of their manufacture are much more elegant and infinitely cheaper than those made in Lima. In Cuzco and the adjacent provinces many of the Indians evince considerable talent in oil-painting. Their productions in this way are, of course, far from being master-pieces; but when we look on the paintings which decorate their churches, and reflect that the artists have been shut out from the advantages of education and study; and moreover, when we consider the coarse materials with which the pictures have been painted, it must be acknowledged that they indicate a degree of talent, which, if duly cultivated, would soar far above mediocrity. In Tarma and its neighborhood the natives weave an exquisitely fine description of woollen cloth. They make ponchos of vicuña wool, which sell for 100 or 120 dollars each, and which are equal to the finest European cloth. The beauty of these Indian textures is truly wonderful, considering the rude process of weaving practised by the natives. They work various colors, figures, and inscriptions in the cloth, and do all this with a rapidity which equals the operations of ordinary looms. The most valuable textures they weave are those produced from the wool of the vicuña and the alpaco. They likewise make very fine textures of cotton and silk. It is curious that the Indians of each province have some particular branch of industry to which they exclusively apply themselves, to the neglect of all others.

The Serranos are a very sociable people. In the towns they keep up a continual round of evening parties, in which singing and dancing are favorite amusements; but on these occasions they indulge in brandy-drinking to a terrible excess. As soon as a party is assembled, bottles and glasses are introduced, and each *individual,* ladies as well as gentlemen, drinks to the health of *the company.* For a party of thirty or more persons, not more

than three or four glasses are brought in, so that one glass is passed repeatedly from hand to hand, and from mouth to mouth. The quantity of brandy drunk at one of the evening parties called in the Sierra *Jaranas*, is almost incredible. According to my observation, I should say that a bottle to each individual, ladies included, is a fair average estimate, the bottles being of the size of those used in Europe for claret. In the year 1839, whilst I was residing for a time in one of the largest towns of the Sierra, a ball was given in honor of the Chilian General Bulnes; on that occasion the brandy flowed in such quantities, that, when morning came, some members of the company were found lying on the floor of the ball-room in a state of intoxication. These facts naturally create an impression very unfavorable to the inhabitants of the Sierra; but a due allowance must be made for the want of education and the force of habit on the part of those who fall into these excesses. These people possess so many excellent moral qualities, that it would be unjust to condemn them solely on account of these orgies. The Serrano is far from being addicted to habitual drunkenness, notwithstanding his intemperate use of strong drinks amidst the excitement of company.

But if the vice of excessive drinking be occasionally indulged in among the better class of people of the Sierra, it is much more frequent among the Indian inhabitants. Every one of their often-recurring festivals is celebrated by a drinking bout, at which enormous quantities of brandy and chicha are consumed. In some districts of the Sierra the chicha is prepared in a peculiar and very disgusting manner by the Indians. Instead of crushing the *jora* (dried maize-grain) between two stones, which is the usual method, the Indians bruise it with their teeth. For this purpose a group of men and women range themselves in a circle round a heap of *jora;* each gathers up a handful, chews it, and then ejects it from the mouth into a vessel allotted for its reception. This mass, after being boiled in water, and left to ferment, is the much admired *chicha mascada* (that is to say, *chewed chicha*), the flavor of which is said to surpass that of the same beverage made in any other way. But they who have been eye-witnesses of the disgusting process, and who bear in mind various other preparations of Indian cookery in which the teeth perform a

part, require some fortitude ere they yield to the pressing invitation of the hospitable Serrano, and taste the proffered nectar.

When it is wished to make the chicha particularly strong and well flavored, it is poured into an earthen jar along with several pounds of beef. This jar is made perfectly air-tight, and buried several feet deep in the ground, where it is left for the space of several years. On the birth of a child it is customary to bury a *botija* full of chicha, which, on the marriage of the same child, is opened and drunk. This chicha has a very agreeable flavor, but is so exceedingly potent, that a single glass of it is sufficient to intoxicate a practised chicha-drinker, or, as they say in the country, a *chichero*.

Every village in the Sierra has its own tutelary saint, whose festival is celebrated with great solemnity. Bull-fights and dances constitute the principal diversions on these occasions. These dances are relics of the *Raymí* or monthly dances, by which the Incas used to mark the divisions of time ; and they are among the most interesting customs peculiar to these parts of Peru. The dancers wear dresses similar to those worn by the ancient Peruvians when they took part in the *Raymí*. Their faces and arms are painted in various colors, and they wear feather caps and feather ponchos. They have bracelets and anklets, and they are armed with clubs, wooden swords, and bows and arrows. Their music, too, is also similar to that of their forefathers. Their instruments consist of a sort of pipe or flute made of reed, and a drum composed simply of a hoop with a skin stretched upon it. To the inharmonious sound of these instruments, accompanying monotonous Quichua songs, the dances commence with those solemn movements with which the Incas used to worship the sun: they then suddenly assume a more joyous character, and at last change to the wild war-dance, in which the mimic contest, stimulated by copious libations of chicha, frequently ends in a real fight. In the larger towns, where the Mestizo portion of the population predominates, these dances are discouraged, and in course of time they will probably be entirely discontinued, though they are scrupulously adhered to by the Indians.

On festival days, bull-fights constitute the most favorite popu-

lar diversion. In the Sierra this barbarous sport is conducted with even more recklessness and cruelty than in the *Corridas* of Lima. Every occasion on which an entertainment of this sort takes place is attended with loss of life, and sometimes the sacrifice both of men and horses is very considerable. During my residence in Jauja, fourteen Indians and nineteen horses were killed or seriously wounded in a bull-fight; yet catastrophes of this kind appear to make no impression on the people.

Some of the church festivals are celebrated by the Indians of the Sierra, in a manner which imparts a peculiar coloring to the religious solemnities. In the midnight mass on Christmas Eve, they imitate in the churches the sounds made by various animals. The singing of birds, the crowing of cocks, the braying of asses, the bleating of sheep, &c., are simulated so perfectly, that a stranger is inclined to believe that the animals have assembled in the temple to participate in the solemnity. At the termination of the mass, troops of women perambulate the streets, during the remainder of the night. Their long black hair flows loosely over their bare shoulders; and in their hands they carry poles with long fluttering strips of paper fixed to the ends of them. They occasionally dance and sing peculiarly beautiful melodies, accompanied by a harp, a fiddle, and a flute; and they mark the measure of the music by the movement of their poles.

The celebration of Christmas-day is marked by the appearance of what are termed the *Negritos*. These are Indians, with their faces concealed by hideous negro masks. Their dress consists of a loose red robe, richly wrought with gold and silver thread, white pantaloons, and their hats are adorned with waving black feathers. In their hands they carry gourd bottles, painted in various gay colors, and containing dried seeds. Whilst they sing, the *Negritos* shake these gourds, and mark the time by the rattling of the dried seeds. They perform the dances of the Guinea negroes, and imitate the attitudes and language of a race which they hold in abhorrence and contempt. For the space of three days and nights these negritos parade the streets, entering the houses and demanding chicha and brandy, with which the inhabitants are glad to supply them, to avoid violence and insult.

On New Year's Day other groups of mummers, called Cerce-

bados, perambulate the streets. They are enveloped in cloaks of coarse grey woollen cloth, their head-gear consists of an old vicuña hat, with a horse's tail dangling behind. Their features are disguised by ludicrous masks with long beards; and, bestriding long sticks or poles, they move about accompanied by burlesque music. Every remarkable incident that has occurred in the families of the town during the course of the year, is made the subject of a song in the Quichua language; and these songs are sung in the streets by the *Corcobados*. Matrimonial quarrels are favorite subjects, and are always painted with high comic effect in these satirical songs. The Corcobados go about for two days; and they usually wind up their performances by drinking and fighting. When two groups of these Corcobados meet together, and the one party assails with ridicule anything which the other is disposed to defend, a terrible affray usually ensues, and the sticks which have served as hobby-horses, are converted into weapons of attack.

In order to facilitate the conversion of the idolatrous Indians, the Spanish monks who accompanied Pizarro's army, sought to render the Christian religion as attractive as possible in the eyes of the heathen aborigines of Peru. With this view they conceived the idea of dramatizing certain scenes in the life of Christ, and having them represented in the churches. In the larger towns these performances have long since been discontinued, but they are still kept up in most of the villages of the Sierra; indeed the efforts made by enlightened ecclesiastics for their suppression, have been met with violent opposition on the part of the Indians.

On Palm Sunday, an image of the Saviour seated on an ass is paraded about the principal streets of the town or village. The Indians strew twigs of palm over the animal, and contend one with another for the honor of throwing their ponchos down on the ground, in order that the ass may walk over them. The animal employed in this ceremony is, when very young, singled out for the purpose, and is never suffered to carry any burthen save the holy image. He is fed by the people, and at every door at which he stops, the inmates of the house pamper him up with the best *fodder* they can procure. The ass is looked upon as something *almost sacred*, and is never named by any other appellation than

the *Burro de Nuestro Señor* (our Lord's ass). In some villages I have seen these animals so fat that they were scarcely able to walk.

Good Friday is solemnized in a manner the effect of which, to the unprejudiced foreigner, is partly burlesque and partly seriously impressive. From the early dawn of morning the church is thronged with Indians, who spend the day in fasting and prayer. At two in the afternoon a large image of the Saviour is brought from the sacristy and laid down in front of the altar. Immediately all the persons in the church rush forward with pieces of cotton to touch the wounds. This gives rise to a struggle, in which angry words and blows are interchanged; in short, there ensues a disgraceful scene of uproar, which is only checked by the interposition of one of the priests. Order being restored, the sacred image is fixed on the cross by three very large silver nails, and the head is encircled by a rich silver crown. On each side are the crosses of the two thieves. Having gaped at this spectacle to their hearts' content, the cholos retire from the church. At eight in the evening they reassemble to witness the solemn ceremony of taking down the Saviour from the cross. The church is then brilliantly lighted up. At the foot of the cross stand four white-robed priests, called *los Santos Varones* (the holy men), whose office it is to take down the image. At a little distance from them, on a sort of stage or platform, stands a figure representing the Virgin Mary. This figure is dressed in black, with a white cap on its head. A priest, in a long discourse, explains the scene to the assembled people, and at the close of the address, turning to the Santos Varones, he says, "Ye holy men, ascend the ladders of the cross, and bring down the body of the Redeemer!" Two of the Santos Varones mount with hammers in their hands, and the priest then says, "Ye holy man, on the right of the Saviour, strike the first blow on the nail of the hand, and take it out!" The command is obeyed, and no sooner is the stroke of the hammer heard, than deep groans and sounds of anguish resound through the church; whilst the cry of "*Misericordia! misericordia!*" repeated by a thousand imploring voices, produces an indescribable sensation of awe and melancholy. The nail is handed to one of the priests standing

at the foot of the altar, who transfers it to another, and this one in his turn presents it to the figure of the Virgin. To that figure the priest then turns and addresses himself, saying: "Thou afflicted mother, approach and receive the nail which pierced the right hand of thy holy Son!" The priest steps forward a few paces, and the figure, by some concealed mechanism, advances to meet him, receives the nail with both hands, lays it on a silver plate, dries its eyes, and then returns to its place in the middle of the platform. The same ceremony is repeated when the two other nails are taken out. Throughout the whole performance of these solemnities, an uninterrupted groaning and howling is kept up by the Indians, who at every stroke of the hammer raise their cries of *Misericordia!* These sounds of anguish reach their climax when the priest consigns the body of the Saviour to the charge of the Virgin. The image is laid in a coffin tastefully adorned with flowers, which, together with the figure of the Virgin Mary, is paraded through the streets. Whilst this nocturnal procession, lighted by thousands of wax tapers, is making the circuit of the town, a party of Indians busy themselves in erecting before the church door twelve arches decorated with flowers. Between every two of the arches they lay flowers on the ground, arranging them in various figures and designs. These flower-carpets are singularly ingenious and pretty. Each one is the work of two cholos, neither of whom seems to bestow any attention to what his comrade is doing; and yet, with a wonderful harmony of operation, they create the most tasteful designs—arabesques, animals, and landscapes, which grow, as it were by magic, under their hands. Whilst I was in Tarma, I was at once interested and astonished to observe on one of these flower-carpets the figure of the Austrian double eagle. On inquiry I learned from an Indian that it had been copied from the quicksilver jars, exported from Idria to Peru. On the return of the procession to the church, a hymn, with harp accompaniment, is sung to the Virgin, as the figure is carried under the arches of flowers. The bier of the Saviour is then deposited in the church, where it is watched throughout the night.

On the following morning, at four o'clock, the ceremony of *hanging Judas* takes place in front of the church. A figure of

Judas, the size of life, is filled with squibs and crackers, and is frequently made to bear a resemblance to some obnoxious inhabitant of the place. After the match is applied to the combustible figure, the cholos dance around it, and exult in the blowing up of their enemy.

In the Sierra, as well as on the coast, the priests are usually the tyrants rather than the guardians of their flocks; and they would frequently be the objects of hatred and vengeance but for the deep-rooted and almost idolatrous reverence which the Indians cherish for priestcraft. It is disgusting to see the Peruvian priests, who usually treat the Indians like brutes, behaving with the most degrading servility when they want to get money from them. The love of the Indians for strong drinks is a vice which the priests turn to their own advantage. For the sake of the fees they frequently order religious festivals, which are joyfully hailed by the Indians, because they never fail to end in drinking bouts.

Added to the ill treatment of the priests, the Indians are most unjustly oppressed by the civil authorities. In the frequent movements of troops from one place to another, they are exposed to great losses and vexations. They are compelled to perform the hardest duties without payment, and often the produce of their fields is laid under contribution, or their horses and mules are pressed into the service of the military. When intelligence is received of the march of a battalion, the natives convey their cattle to some remote place of concealment in the mountains, for they seldom recover possession of them if once they fall into the hands of the soldiery.

Every fortnight a mail is despatched with letters from Lima to Tarma, Jauja, Huancavelica, Ayacucha, Cuzco, and into Bolivia; another proceeds to the northern provinces; a third to Arequipa and the southern provinces; and every week one is despatched to Cerro de Pasco. In Lima, the letter-bag is consigned to the charge of an Indian, who conveys it on the back of a mule to the next station,* where it is received by another In-

* The distance from one station to another varies from six to twelve miles.

dian; and in this manner, handed from cholo to cholo, the letter-bag traverses the whole of its destined route, unaccompanied by an official courier. As soon as the mail arrives at a station, a flag is displayed at the house of the post-master, to intimate to those who expect letters that they may receive them; for they are not sent round to the persons to whom they are addressed, and it is sometimes even a favor to get them three or four days after their arrival. The Peruvian post is as tardy as it is ill-regulated. On one of my journeys, I started from Lima two days after the departure of the mail. On the road I overtook and passed the Indian who had charge of the letters, and, without hurrying myself, I arrived in Tarma a day and a half before him. Ascending the Cordillera, I once met an Indian very leisurely driving his ass before him with the mail-bag fastened to its back. Between the towns which do not lie in the regular line of route, there is no post-office communication; for example, between Pasco and Caxamarca, or between Pasco and Tarma, or Jauja; and when it is wished to despatch letters from one to another of these towns, private messengers must be employed. The consequence is, that business, which in Europe would be conducted through the medium of correspondence, can be arranged only by personal communication in Peru. Travelling is difficult, but not very expensive, as every one possesses horses or mules.

The best mules employed in the Sierra are obtained from the province of Tucuman in Buenos Ayres. Formerly the arrieros used annually to bring droves of several thousand mules through Bolivia and the Peruvian Sierra, selling as many as they could on the way, and taking to Cerro de Pasco those that remained unsold. During the Spanish domination, the mule trade was in the hands of the Government, to whose agents it afforded ample opportunity for the exercise of injustice and extortion. It was one of the most oppressive of the *repartimientos*.* Every Indian was compelled to purchase a mule, and was not allowed even the privilege of choosing the animal. The mules were distributed

* *Repartimientos* (literally, distributions) were the compulsory sale of articles by the provincial authorities.

by the authorities, and were tied to the doors of the houses for whose occupants they were destined. After the distribution of the mules, a collector went round to receive the payment. During the war in Buenos Ayres the traffic in mules suffered very considerably. For the space of twelve years not a mule had been brought from that part of South America to Peru, when in 1840 the Tucumanians revisited the Sierra with their droves of mules. They were joyfully welcomed by the Serranos, who gave good prices for the animals, and since then the traffic has begun to revive.

In tracing the characteristic features of the Sierra, I have as far as possible confined myself to generalities, and I will not now weary the reader by entering upon a minute description of particular towns and villages. All are built pretty nearly after one model. The large quadrangular Plaza is closed on three of its sides with buildings, among which there is always the Government house (*cabildo*), and the public jail; the fourth side is occupied by a church. From this Plaza run in straight lines eight streets, more or less broad, and these streets are crossed at right angles by others; all presenting the same uniformity as in Lima. The houses are roomy, surrounded by court-yards, and consist of a ground-floor and a story above, but very frequently of the ground-floor only. The walls are of brick, and the roofs are tiled. The churches are in very bad taste, with the exception of a few in the larger towns, which have a good appearance externally, and are richly decorated within. The smaller Indian villages are poor and dirty, and are built with little attention to regularity. But even in them the quadrangular Plaza is never wanting, and at least four straight streets issue from it.

The Sierra is by far the most populous part of Peru. The banks of the rivers flowing through the fertile valleys are thickly clustered with villages, which give a peculiar charm to the landscape, doubly pleasing to the eye of the traveller who comes from the barren parts of the country. The cultivated lands afford evidence of progressive improvement, and it is easy to imagine the flourishing condition to which this country might arrive with increased population.

From the Sierra two separate roads lead to the eastern de-

clivity of the Andes. One lies along the banks of the mountain rivers, and the other passes over the ridges of the mountains. The first way is very difficult, and scarcely practicable, for in some parts the streams flow through narrow ravines, bordered on each side by perpendicular rocks, and occasionally their course is hidden amidst impenetrable forests. The other way, across the mountains, leads again into the Puna region, and from thence over the steep ridges of the Andes to their barren summits. Descending from these summits, we arrive on the sharp ridges of one of the many side branches of the Puna Cordillera, which run eastward. The Peruvians call these sharp mountain ridges *Cuchillas* (knives). After crossing the Andes, and descending a few hundred feet lower, in the direction of the east, the traveller beholds a country totally different from that which he left on the western declivity of the mountains. On the eastern side the soil is richly covered with vegetation. From the cuchillas the road ascends to some higher ridges, crowned with stunted trees and brushwood, which, gradually spreading upward, blend with the high forests. These wooded ridges are called by the natives *Ceja de la Montaña* (the mist of the mountains). In these regions the climate is generally more mild than in the Sierra, for the mercury never falls to freezing point, and in the middle part of the day it never rises so high as in the warm Sierra valleys. Throughout the whole year the *Ceja de la Montaña* is overshadowed by thick mists, rising from the rivers in the valleys. In the dry season these mists are absorbed by the sun's rays, but in winter they float in thick clouds over the hills, and discharge themselves in endless torrents of rain. The damp vapors have an injurious effect on the health of the inhabitants of these districts, which are, however, very thinly populated, as the constant moisture unfits the soil for the cultivation of anything except potatoes. The pure alpine air of the Puna is preferred by the Indians to the vapory atmosphere of the Ceja.

CHAPTER XIV.

Road to the Primeval Forests—Barbacoas, or Indian Suspension Bridges—Vegetation—Hollow Passes—Zoology—the Montaña—Plantations—Inhabitants—Trade in Peruvian Bark—Wandering Indians—Wild Indians or Indios Bravos—Languages, Manners, and Customs of the Indios Bravos—Dress—Warlike Weapons and Hunting Arms—Dwellings—Religion—Physical formation of the Wild Indian Tribes—Animals of the Aboriginal Forests—Mammalia—Hunting the Ounce—Birds—Amphibia—Poisonous Serpents—Huaco—Insects—Plants.

Leaving Ceja de la Montaña, we will trace the route to the Aboriginal forests, which extend eastwardly from the bases of the Andes. The whole plain is overspread by a thick veil of mist, which does not disperse until about noon, and then an undulating dark green canopy clouds the vapory atmosphere. A European, whose heart throbs at the bare idea of one of those vast virgin forests, gazes anxiously forward on the boundless distance, and finds the pace of his cautious mule too tardy for his impatient hopes and wishes. He beholds in perspective the goal of his long journey. Nature, in all her virginal freshness and grandeur, opens to his astonished eyes, and he feels a sensation of delight he never before experienced. Regardless of present toil and danger, he sees only the pleasure to come. But he is soon drawn back to cool reality, and is forcibly reminded of the truth, that every enjoyment must be earned by labor. The road is broken, narrow, and steep; over the woody sides of the hill it is easily passable; but as soon as it begins to descend, it presents all those difficulties which have been interestingly described by the early travellers in Peru. The scanty population of the surrounding districts, the native listlessness of the Indians, and their indifference to the conveniences of life, are obstacles to the making of roads which might be passable without difficulty and danger. However, where nature from the state of the country

has compelled man to establish a communication, it is executed in the most rude and unsatisfactory manner. A most decided proof of this is apparent in the bridges called *barbacoas*, which are constructed where the way is through a *derumbo*, or a small narrow mountain-pass, or where there is an obstruction caused by a rock which cannot be passed circuitously. The barbacoas are constructed in the following manner. Stakes from three to three and a half feet long are driven into the ground, or into the crevices of rocks. Over the ends of these stakes are fastened strong branches of trees, the interstices are filled up with mud, and the whole is covered by a sort of matting composed of plaited branches and reeds. If the ground admits of it, which is seldom the case, a pile of stones is built up beneath the barbacoa, extending to at least one half its breadth. When it is considered that there is, probably, on the one side of this bridge, a rock inclining at a very acute angle, or an almost perpendicular declivity of a hill of loose earth, and that on the other side there yawns a deep abyss against which there is not the least protection, the traveller may well be pardoned if he shudders as he passes over the creaking and shaking barbacoa. These fragile bridges are often so much worn, that the feet of the mules slip through the layers of mud and reeds, and whilst making efforts to disengage themselves, the animals fall over the edge of the barbacoa, and are hurled into the chasm below, dragging down the crazy structure along with them. In consequence of these accidents, the way is often for weeks, or even months, impassable.

In the construction of these rude bridges, I observed that the Indians, in their simplicity, always faithfully copy their great instructress, nature. The majority of the plants growing in these regions belong, if I may use the expression, to an aërial vegetation. The small, gnarled, low-branched trees, have often scarcely one half of their roots in the earth: the other half spreads over the surface of the soil; then winding round the roots or branches of some neighboring plant, fastens on it, and intimately uniting with it, forms a kind of suspension bridge, over which the intertwining of numerous luxuriant climbing plants *makes* a strong, impenetrable network. All the trees and shrubs *are covered* with innumerable parasites, which, in the higher re-

gions, are met with in their smaller forms, as lichens, mosses, &c.; but lower down, in the course of the various transformations they undergo, they appear in larger development.

The whole vegetable kingdom here is stamped by a peculiar character. It presents immense fulness and luxuriance: it spreads widely, with but little upward development, rising on the average only a few feet above the earth. Trees, shrubs, and tendrils, in endless complication of color, entwine together, sometimes fostering, sometimes crushing each other. Out of the remains of the dead arises a new generation, with an increase of vital impulse. It seems as though the ice-crowned Andes looked down with envy on the luxuriant vegetation of the forests, and sought to blight it by sending down cold, nightly winds. The low temperature of the night counteracts that extreme development which the humidity of the soil and the great heat of the day promote. But what the vegetation loses in upward growth it gains in superficial extension, and thereby it secures more protection against the ever-alternating temperature.

The further we descend the eastern declivity, the more difficult becomes the way. During the rainy season deep fissures are worked out by the flow of waters; the ground is slippery and full of holes. The sides of these hollow passes are often so close together that the rider cannot keep his legs down on each side of his mule, and is obliged to raise up his feet and thrust them forward. When beasts of burthen, coming in opposite directions, meet in these places, the direst confusion ensues, and frequently sanguinary conflicts arise among the Indians. The weaker party are then obliged to unload their mules, and the poor beasts are dragged backward by their hind legs, until they reach a point at which there is sufficient space for the others to pass. When I was proceeding through one of these cavities on Christmas-eve, 1840, I encountered a heavily laden ass coming down a steep declivity. Ere I had time to leap from my saddle, the ass came direct upon me with such force that my horse was driven backwards by the concussion, and I was thrown. Ten months afterwards, another encounter of the same kind threatened me with a similar disaster, and to save myself I had no alternative but to shoot the ass. The Indian who was driving the animal neglected

the usual warning cry, given by the arrieros when they enter those dangerous passes, and he was regardless of my repeated calls desiring him to stop.

In some steep places, with the view of improving the roads, the Indians lay down large stones in the form of steps; but to ride over these rude flights of steps is no easy task, for the stones are small, and are placed at the distance of a foot and a half or two feet apart. The mule begins by placing his hind feet on the first stone, then springing forward he reaches the third stone with his fore feet, at the same time placing his hind feet to the second. By this manœuvre the mule's body is kept at full stretch, and the rider is obliged to lean forward over the animal's neck to avoid being thrown head-foremost by the violent jerks when the mule springs from step to step. It is absolute torture to ride down a descent of five or six leagues, along a road such as I have just described: willingly would the harassed rider dismount and pursue his course on foot; but were he to attempt to do so, the mule would stand stock still. I have already remarked the singular obstinacy with which the mules refuse to proceed when their riders dismount, and it sometimes gives rise to very comical scenes. On my way to Vitoc, I was passing through a ravine in which the uprooted trunk of a tree was resting slantwise against a rock. Though there was not room for me to ride under it, yet there was sufficient space to allow my mule to pass, and I accordingly dismounted; but all my efforts to drive the animal forward were fruitless. I had no alternative but to ride close up to the tree, then spurring the mule, I quickly slipped out of the saddle, and seizing the trunk of the tree, I hung to it until the mule had passed on.

No less difficult and dangerous are the steep declivities over loamy soils, which are frequently met with in these districts. On them the mule has no firm footing, and is in danger of slipping down at every step. But the wonderful instinct of these animals enables them to overcome the difficulty. They approximate the hind and fore feet in the manner of the Chamois goat, when he is about to make a spring, and lowering the hinder part of the body in a position, half sitting half standing, they slide *down the* smooth declivity. At first this sliding movement

creates a very unpleasant feeling of apprehension, which is not altogether removed by frequent repetitions. Accidents frequently occur, in which both mule and rider are mortally injured.

There is more variety of animals in these regions than in the mountainous parts; but they have few peculiarities of character. The swift-footed roe of the Cordillera roams here and dwells in the thickets, avoiding the warm forest. The dark brown coati (*Nasua montana*, Tsch.) howls, and digs at the roots of trees in search of food; the shy opossum crawls fearfully under the foliage; the lazy armadillo creeps into his hole; but the ounce and the lion seldom stray hither to contest with the black bear (*Ursus frugilegus*, Tsch.) the possession of his territory. The little hairy tapir (*Tapirus villosus*, Wagn.) ventures only at twilight out of his close ambush to forage in the long grass.

Of the birds there is not much variety of species; but all are remarkable for gay-colored plumage. Among the most characteristic of these districts are the red-bellied tanagra (*Tanagra igniventris*, Orb.), the fire-colored pyranga (*Phœnisoma bivittata*, Tsch.), two species of the crow, one of which is of a fine blue color (*Cyanocorax viridicyanus*, G. R. Gray), the other green on the back and bright yellow on the belly (*Cyanoc. peruanus*, Cab.). The Indians call the latter *Quienquien*, as it utters a sort of screaming sound resembling these syllables. Individual birds belonging to the Penelope family (*P. rufiventris* and *adspersa*, Tsch.) and the green pepper-eater (*Pteroglossus cæruleo-cinctus*, Tsch., *Pt. atro-gularis*, Sturm.) are found in the lower forests.

Proceeding still further downward we at length reach the *Montaña*. The Peruvians apply this name to the vast aboriginal forests which extend across the whole country from north to south along the eastern foot of the Andes. Those which lie higher, and in which the spaces between the lofty trees are overgrown with thick masses of bushes and twining plants, are called by the natives simply *Montañas*. Those which are free from these intermediate masses of vegetation they call *Montañas reales* (royal mountains). At first sight they produce the impression of a virgin forest of oaks.

The distance from the Ceja to the district properly called the Montaña is very various at different points. In some parts it

takes six or eight days' hard riding; in other directions the traveller may, in the morning, leave the snow-covered Puna huts, and at sunset, on the uninhabited margin of the primeval forest, he may taste pine-apples and bananas of his own gathering. Such a day certainly deserves to form an epoch in his life; for in the course of a few hours he passes through the most opposite climates of the earth, and the gradual progression of the development of the vegetable world is spread out in visible reality before him.

The Montañas of Peru are, in general, but thinly peopled with Christian Indians. They are employed either in cultivating their own fields, or in working as day-laborers in the great plantations. The productions of the haciendas consist chiefly of sugar, coffee, maize, coca, tobacco, oranges, bananas, and pine-apples, which are sent to the Sierra. The cultivation of bark, balsams, gums, honey and wax, also occupies a great number of Indians.

The plantation buildings stand on rising grounds. The walls are constructed of reeds, the interstices being filled up with loam, and the roofs are of straw or palm leaves. Around the buildings are the fields allotted to cultivation, in which the soils favorable to the production of certain plants are selected. The coffee usually grows round the house, and an adjacent building contains the store-rooms. The fruit-trees grow along the margins of the maize fields; marshy ground is selected for the sugar fields; in the vicinity of brooks and streams the useful banana flourishes; the pine-trees are ranged in rows on the hot, dry declivities, and the coca is found to thrive best in warm, hollow dells.

As the humidity of the atmosphere, added to the multitudes of insects, mice and rats, prevents any lengthened preservation of provisions, the cultivators sell or exchange them as speedily as possible; hence arises a very active intercourse in business between the Montañas and the Sierra. The mountain Indians bring llamas, dried meat, potatoes, bark, and salt, to exchange for fruit; it is very seldom that any money circulates in this traffic. Only the owners of plantations sell their productions for ready money, with which they purchase, in the upland towns, European goods, particularly printed and plain cottons, coarse woollen stuffs, knives, *hatchets, fishing*-tackle, &c.; with these goods they pay their

laborers, charging them for every article five or even six times its value. As there is throughout these forest regions a great want of men, the plantation owners endeavor to get the few Indians who settle voluntarily on their property, fixed to it for ever. They sell them indispensable necessaries at an extravagant price, on condition of their paying for them by field labor.

I have seen an Indian give five days' labor, from six o'clock in the morning to sunset, for a red pocket-handkerchief, which in Germany would not be worth four groschen. The desire to possess showy articles, the necessity of obtaining materials for his wretched clothing, or implements to enable him, in his few free hours, to cultivate his own field, and, above all, his passion for coca and intoxicating drinks, all prompt the Indian to incur debt upon debt to the plantation owner. The sugar-cane is seldom used in the forest plantations for making sugar. The juice is usually converted into the cakes called *chancacas*, which have been already mentioned, or it is made into *guarapo*, a strong liquor, which the Indians spare no effort to procure. When they begin to be intoxicated, they desire more and more of the liquor, which is readily given, as it is the interest of the owners to supply it. After some days of extreme abstinence they return to their work, and then the Mayordomo shows them how much their debt has increased, and the astonished Indian finds that he must labor for several months to pay it; thus these unfortunate beings are fastened in the fetters of slavery. Their treatment is, in general, most tyrannical. The Negro slave is far more happy than the free Indians in the haciendas of this part of Peru. At sunrise all the laborers must assemble in the courtyard of the plantation, where the Mayordomo prescribes to them their day's work, and gives them the necessary implements. They are compelled to work in the most oppressive heat, and are only allowed to rest thrice for a few minutes, at times fixed, for chewing their coca and for dinner. For indolence or obstinacy they suffer corporal punishment, usually by being put into a kind of stocks, called the CEPO, in which the culprit stands from twelve to forty-eight hours, with his neck or legs fixed between two blocks of wood.

The labor of bringing the forest lands into a productive state is one of the severest tasks in the Montañas, and it can only be

performed in the hottest season of the year. As the soil is always moist, and the vegetation full of sap, the trees must be cut down about the end of the rainy season, and after drying for some months they are burned; but they are seldom brought into a state of such aridity as to be destroyed by the action of the fire. This is a considerable obstruction to the progress of raising plants; for the seed must be sown between the felled trees, which are perhaps only half-charred, and are still damp. In consequence of this, the practice is, in the first year, to plant maize at the places where the burnt trees are laid; the maize grows in almost incredible abundance, and the result is a singularly rich harvest, after which, part of the burned wood is removed. The same process is renewed after every harvest, until all the burnt trees are cleared off and a free field gained for the cultivation of the perennial plants.

Far more fortunate than the Indians who are neighbors of the plantations, are those who live far back in the interior of the forests, and who, in consequence of their great distance from any settlement, seldom have intercourse with the civilized world. Content with what bounteous nature offers them, and ignorant of the wants of more refined life, they seek nothing beyond such things as they can, without any great efforts, obtain in the districts in which they dwell. There they plant their little patches of ground, the care of which is consigned to the women. The men takes their bows and arrows and set out on hunting expeditions, during which they are for weeks, often months, absent from their homes. The rainy season drives them back to their huts, where they indulge in indolent repose, which is only occasionally suspended when they are engaged in fishing. The return of the sunny sky draws them out again on their expeditions, in which they collect a sufficient supply of food for the year.

But wherever these Indians have settled on the banks of great rivers, the trading intercourse produces an alteration in their mode of life. Europeans and Creoles then try to create among them, as among the plantation Indians, a desire to satisfy unnecessary wants, and thereby they are induced to collect the valuable productions of the forests. In the loftier districts of the Montañas *the Peruvian* bark is found: the lower and more marshy places

produce the sarsaparilla, and a sort of wood for dyeing called *Llangua*. This last-named article has not yet found its way to Europe.

In the month of May the Indians assemble to collect the Peruvian bark, for which purpose they repair to the extensive Cinchona woods. One of the party climbs a high tree to obtain, if possible, an uninterrupted view over the forest, and to spy out the *Manchas*, or spots where there are groups of Peruvian bark trees. The men who thus spy out the trees are called *Cateadores*, or searchers. It requires great experience to single out, in the dark leaf-covered expanse, the Cinchona groups merely by the particular tint of the foliage, which often differs but very little from that of the surrounding trees. As soon as the cateador has marked out and correctly fixed upon the mancha, he descends to his companions, and leads them with wonderful precision through the almost impenetrable forest to the group. A hut is immediately built, which serves as a resting-place during night, and is also used for drying and preserving the bark. The tree is felled as near the root as possible, divided into pieces, each from three to four feet long, and with a short curved knife a longitudinal incision is made in the bark. After a few days, if the pieces are found to be getting dry, the bark already incised is stripped off in long slips, which are placed in the hut, or in hot weather laid before it to dry. In many parts, particularly in the central and southern districts of Peru, where the moisture is not very great, the bark is dried in the forest, and the slips are packed in large bundles. In other districts, on the contrary, the bark is rolled up green, and sent to the neighboring villages, where it is dried. Towards the end of September the *Cascarilleros** return to their homes.

In the more early periods of South American history, the bark was a principal article of Peruvian commerce. Since the commencement of the present century its value has, however, considerably diminished, chiefly in consequence of adulterated and inferior kinds, which are supplied from other quarters, perhaps also on account of the more frequent use of quinine; for in the production of the alkaloids less bark is employed than was for-

* Bark-gatherers. The Peruvians call the bark *cascarilla*, and they point out the distinctions of a great number of species and varieties.

merly used in substance. During the war of independence the bark trade received its death-blow, and for the space of several years scarcely more than a few hundred-weights of bark were exported from Peru. The Montañas of Huanuco, which once furnished all the apothecaries of Europe with the "divine medicine," are beginning again to yield supplies. From the roots of the felled trees a vigorous after-growth has commenced. In the Montañas of Huamalies a kind of bark is found, the nature of which is not yet defined by botanists; and from the Montañas of Urubamba comes the highly esteemed *Cascarilla de Cuzco*, which contains an alkaloid, named *Cusconin*.* Possibly the medicinal bark may again become a flourishing branch of trade for Peru, though it can never again recover the importance which was attached to it a century ago. During my residence in Peru, a plan was in agitation for establishing a quinine manufactory at Huanuco. The plan, if well carried out, would certainly be attended with success. There is in Bolivia an establishment of this kind conducted by a Frenchman; but the quinine produced is very impure. The inhabitants of the Peruvian forests drink an infusion of the green bark as a remedy against intermitting fever. I have found it in many cases much more efficacious than the dried kind, for less than half the usual dose produces, in a short time, convalescence, and the patient is secure against returning febrile attacks.

A class of Indians who live far back in the heart of the woods of Southern Peru and Bolivia employ themselves almost exclusively in gathering balsams and odorous gums from resinous plants, many of which are burned in the churches as incense. They also collect various objects, supposed to be sympathetic remedies, such as the claws of the tapir, against falling sickness; and the teeth of poisonous snakes which, carefully fixed in leaves, and stuck into the tubes of rushes, are regarded as powerful specifics against headache and blindness. Various salves, plasters, powders, seeds, roots, barks, &c., to each of which is attributed some infallible curative power, are prepared and brought to mar-

* From Cuzco, the ancient residence of the Incas. It was discovered by the French chemists Corriol and Pelletier, in the Cascarilla which is shipped in Arica; hence this alkaloid is also called *Aricin*.

ket by the Indians. When the rainy season sets in they leave the forest and proceed in parties to the mountainous country. On these occasions, contrary to the general custom of the Indians, the men, not the women, carry the burthens. They are accompanied by the women as far as the Sierra; for the loads, which are often very heavy, graze the backs of the men who carry them, and the women then act as surgeons. The injured part is first carefully washed with copaiba balsam, moistened, then covered with leaves fixed on with small strips of leather, overlaid with the hide of some forest animal. These operations being performed, the loads are again fastened on the backs of the Indians. In their native forests these people wear but little clothing. Their dress is limited to a sort of loose tunic without sleeves for the women, and for the men merely a piece of cloth fastened round the waist. They go barefooted; but they paint their feet and legs with the juice of the Huito (*Genipa oblongifolia*, R. Pav.) in such a manner that they seem to be wearing half-boots. The juice of the Huito has the effect of protecting them against the stings of insects. The coloring adheres so strongly to the skin that it cannot be washed off by water; but oil speedily removes it. In the Sierra these Indians put on warmer clothing, and on their feet they wear a kind of boots called *aspargetas*, made of the plaited tendrils of plants.

The stock of balsams and drugs being disposed of, the Indians, after a few months' absence, return to their homes. Some of them, however, wander to the distance of two or three hundred leagues from their native forests, traversing the greater part of Peru, and even visiting Lima, carrying large flask gourds filled with balsams. These wandering tribes seek frequent contact with other nations. They are not distrustful and reserved, but, on the contrary, annoyingly communicative. It is not easy to discover the cause of this exception, or to ascertain the time when the Indians began to travel the country as physicians and apothecaries. The earliest writers on the oldest epochs of Peruvian history make no mention of this race of medical pedlars.

The Indians here alluded to all profess Christianity, and must, as *Indios Christianos*, in strict correctness, be distinguished from the wild Indians, *Indios Bravos*, who exclusively inhabit the

eastern Montañas of Peru, towards the frontiers of Brazil. These Indios Bravos comprehend numerous tribes, each of which has its own customs, religion, and also, in general, its own language. Only very few of them are known, for since the overthrow of the missions there is little communication with them. Respecting the Indios Bravos who inhabit the Montañas of Southern Peru, I have been unable to collect any accurate information. They remain quite unknown, for impenetrable wilds intervene between them and the civilized world, and seldom has a European foot ventured into their territory. The wild Indians in Central Peru are most set against the Christians, particularly those called Iscuchanos, in the Montaña de Huanta, and those known by the name of Chunchos, in the Montaña de Vitoc. The Iscuchanos sometimes maintain with the inhabitants of Huanta a trade of barter; but this intercourse is occasionally interrupted by long intervals of hostility, during which the Iscuchanos, though rather an inoffensive race, commit various depredations on the Huantanos; driving the cattle from the pastures, carrying off the produce of the soil, and spreading terror throughout the whole district. Some years ago, when the inhabitants of Huanta had assembled for the procession of the Festival of Corpus Christi, a troop of Iscuchanos came upon them with wild bulls, turning the infuriated animals against the procession, which was dispersed, and many of the Huantanos were killed or severely wounded. These Iscuchanos are so favored by the locality of the district they inhabit, that even were a military expedition sent to drive them farther back into the woods, it would probably be unsuccessful.

The Chunchos are far more dangerous, and are one of the most formidable races of the Indios Bravos. They inhabit the most southern part of the Pampa del Sacramento (the terra incognita of Peru), and chiefly the district through which flow the rivers Chanchamayo and Perene. Those regions are inhabited by a great number of tribes, most of which are only known by name. The frontier neighbors of the Chunchos are the sanguinary Campas or Antes who destroyed the missions of Jesus Maria in Pangoa, and who still occasionally pay hostile visits to San Buenaventura de Chavini, the extreme Christian outpost in the *Montaña de* Andamarca. The savage race of the Casibos, the

enemies of all the surrounding populations, inhabit the banks of the river Pachitea. This race maintains incessant war with all the surrounding tribes, and constantly seeks to destroy them. According to the accounts of the missionaries, they, as well as the Antes and Chunchos, are still cannibals, and undertake war-like expeditions for the purpose of capturing prisoners, whom they devour. After the rainy season, when the Simirinches, the Amapuahas, or Consbos, hunt in the western forests, they often fall into the hands of the Casibos, who imitate in perfection the cries of the forest animals, so that the hunters are treacherously misled, and being captured, are carried off as victims. Many horrible accounts of this barbarous tribe were related by the missionaries centuries ago, when romantic stories and exaggerations of every kind were the order of the day; but the most recent communications of the missionaries from Ocopa confirm the fact, that in the year 1842, the Casibos continued to be savage Anthropophagi. It is worthy of remark that they never eat women, a fact which some may be inclined to attribute to respect for the female sex. It is, however, assignable to a different feeling. All the South American Indians, who still remain under the influence of sorcery and empiricism, consider women in the light of impure and evil beings, and calculated to injure them. Among a few of the less rude nations this aversion is apparent in domestic life, in a certain unconquerable contempt of females. With the Anthropophagi the feeling extends, fortunately, to their flesh, which is held to be poisonous.

The languages spoken by the wild Indian tribes are very various. From the Marañon to Omaguas, Quichua, the language of the Incas, is spoken. On the left bank of the Ucayali the dialect of the Panos prevails. On the right bank the Cascas, the Sinabus, and the Diabus, preserve their own idioms, which are so different that those races are reciprocally unable to communicate with each other. On Upper Ucayali evidences of common origin are said to be apparent between the Simirinches, Campas, Runaguas, and Mochobos. But on this subject no accurate conclusions can be formed; for the accounts given by the missions in early periods were very imperfect, and most of the races are so intractable that it has since been impossible to col-

lect correct information. According to the accounts of travelled missionaries which I had the opportunity of examining in the convent of Ocopa, it appears that, besides the Quichua, the idioms spoken by the Panos, Cascas, Simirinches, and the Chunchos, may be set down as dialects of decidedly different origins.

The mode of living among all these Indians is very much the same. War and hunting in summer, and repairing their war-like weapons in winter, are the occupations of the men. The women cultivate the fields, lay up the stores of provisions, fish, spin and cook. Their clothes are of the most simple kind. Many of the races wear no clothing, and have their bodies wholly or partially bedaubed with paint. The men of some races wear a kind of shirt without sleeves, and the women a petticoat reaching from the waist to the knees. These garments are made of cotton obtained from the uncultivated tree *Bombax*, and their color is white, blue, or red. The custom of boring the ears, the nose, and the under lip, for the insertion of some ornament, is much practised, particularly by the Panos, Shipeos, and Pirras. They paint their bodies, but not exactly in the tattoo manner; they confine themselves to single stripes. The Sensis women draw two stripes from the shoulder, over each breast, down to the pit of the stomach; the Pirras women paint a band in the form of a girdle round the waist, and they have three of a darker color round each thigh. These stripes, when once laid on, can never be removed by washing. They are made with the unripe fruit of one of the Rubiacaceæ. Some tribes paint the face only; others, on the contrary, do not touch that part; but bedaub with colors their arms, feet, and breasts.

In hunting, bows and arrows are the principal weapons used by the Indians. In war they use, besides bows and arrows, clubs and a kind of sword made of wood. The arrows are reeds, five or six feet long, and of the thickness of a finger. The point is of very hard wood, and is strongly barbed by notches and with sharp fish teeth about three inches long. To the other extremity of the arrow colored feathers are always affixed.

Among many Indians, particularly in the western and northern districts of the Pampa del Sacramento, the *Pocuna* is a weapon much used in hunting. It is made of a long reed, and

measures eight or ten, or even more, feet. At one end are fixed two teeth of a javali, or white-lipped peccary (*Dicotyles labiatus*), on which the reed is rested when taking aim. The arrows, which are only one and a half or two inches long, are made of the thick part of a strong cactus stem. In general their small arrows are poisoned, for otherwise the wound would be too inconsiderable to kill even a little bird. The poison for arrows differs almost with every tribe, and very mysterious ceremonies are observed at its preparation. On this account the art of preparing it, and the ingredients employed, are only very partially known to Europeans. Their elements are obtained from several plants not yet defined botanically, among which the *Apihuasca* and poison capsicum are much resorted to. Infusions of the leaves of a very strong kind of tobacco, and of the Sanaño (*Tabernæmontana Sanaño*, R. P.), and of Euphorbiaceæ, are also taken. Some modern travellers, contrary to the testimony of the oldest writers on Peru, have asserted that no animal substance is employed in the poison for arrows. I am, however, enabled to state, on the authority of an Indian who had himself often made the poison, that not only the black and very poisonous emmet (*Cryptacereo atrato affin*), but also the teeth of the formidable serpent, known to the Indians by the name of Miuamaru or Jergon (*Lachesis picta*, Tsch.), are used for that purpose.

The wound of the poisoned arrow is fatal and rapid. Men and large mammalia die in about four or five minutes after receiving the wound; the smaller mammiferous animals and birds, in two minutes. The blow-reed sends these deadly arrows with great certainty to the distance of thirty-two or thirty-six paces. Hunting with the blow-reed must be long practised in order to acquire dexterity in its use, and great caution is requisite to avoid being self-wounded by the small sharp arrows. An example came to my knowledge in the case of an Indian who let an arrow fall unobserved from his quiver; he trod upon it, and it penetrated the sole of his foot; in a very short time he was a corpse.

The club called *Matusino* is four or five feet long, and is encircled in a spiral form at the thick end, by a row of deer's horns. A single long horn is fastened in the centre, the chief

use of which is to stick it in the earth when the club is rested. Only a few races of upper and lower Ucayali and the Sensis use this formidable weapon, which is very inconvenient and obstructive in passing through thick forests. The *macana*, or wooden sword, is made of strong *chunta*. The color of this wood is a deep blackish brown; it is very hard and heavy, and is always used for implements which require great durability and strength. The macana is about four feet long, one inch thick, and from five to six inches broad; towards the hilt end the breadth is about three inches, and it is rounded. It is so well cut and polished, that a sabre scarcely excels it in sharpness. The weapon is so heavy that it requires both hands to wield it.

There are not only offensive, but also defensive, weapons. One of the latter is the *viche*, a very simple shield, one and a half or two feet in diameter. It consists of a strong frame of twisted creeping plants, over which the skin of a deer or tapir is stretched and fastened with twine. On the inside there are two holds for the arm; the edge is adorned with colored feathers.

The Indians of the races above noticed seldom live in villages, but chiefly in huts scattered through the forests. Sometimes they construct a few of their dwellings near together, and so form a hamlet. Their huts are either quadrangular, oblong, or circular. The walls consist of strong stems of trees, bound together by twining plants; and the roof is of palm leaves laid over a skeleton of reeds. The entrance, which is on the side opposite to the prevailing wind, is left open, and but seldom protected by a door. At Chanchamayo I saw a very simple kind of hut among the Chunchos. It resembled an open umbrella with the handle stuck in the earth. The single wall, which also formed its roof, consisted of eight long reeds: they spread out below in the form of a fan, standing obliquely on the earth, and fastened to three stems of trees. On this simple skeleton were laid lengthways the leaves of the omero, a kind of palm. A strong stem fixed firmly in the earth, extended obliquely to the middle of the inner side of the wall, and two thinner stems on each side, served as supports for this frail building. According to the direction of the wind the hut is turned round.

The Indian huts all stand detached from each other, and they

are seldom divided internally into apartments. They occupy very little ground, never more than sixty square feet of superficies. In the principal settlement of an Indian race, the huts are scattered over a circuit of some miles in the forests.

Any form of government is a thing quite unknown to most of the Indios Bravos of Peru. Uniformity of speech, manners, and arms, unite together a number of Indians, who thus form a race, but there is among them no bond of subjection, or of duty to any government, either voluntarily chosen, or self-constituted. Among the inhabitants of Lower Ucayali, however, the oldest, or the bravest individuals of each race are either publicly, or silently recognised as chiefs. Respect to age prevails only among a few of the races, as the Setebos, Mayorhunas, and Panos. Among others, as the Campos, Casibos, and Cunchos, the old are put to death. It is a general custom of the wild Indians to kill their aged prisoners immediately on their being captured.

Social meetings among these races are of rare occurrence. Gloomy, reserved, and distrustful, the Indian is only at ease in the circle he has himself formed. When, however, the general interest of the race is in question, then he comes boldly forward in support of the whole. The usual assemblages are for the arrangement of long hunting excursions, and warlike expeditions. The departures and the returns are celebrated by tumultuous feasts, in which intoxicating drinks flow freely. Most of the liquors are prepared from Yucca, or the fruits of the Chunta, called the *Mazato*, or other species of palms. In the most remote forests, and among the most insulated tribes, the preparation of intoxicating liquors is known; and there certainly is not in all South America an Indian race which is not familiar with it. Wild dances form part of the entertainments, and the banquet usually ends with a sanguinary battle.

Marriage in most races is celebrated socially, but not among those in which polygamy prevails. The formula observed on the occasion differs in different tribes; in some the union is effected under painful ceremonies to the bride, in others with fasting and penitential torments to the bridegroom. In general the Indian selects a wife for himself. In the greater number of tribes a maiden is set up as a prize, and the young men com-

mence a life or death contest for her. The oldest warriors are arbitrators, and from their hands the conqueror receives the prize. This is the practice among the inhabitants of the Rio de Santa Catalina. With them, as well as with most of the tribes of Western Ucayali, the birth of a child is festively celebrated. The oldest individuals of the race assemble to receive the child, which is repeatedly blown on to drive demons and sickness away from it; the name of an animal is then given to it, and, according to Don Pedro Beltran, the witnesses of the ceremony mark with a wooden pencil some hieroglyphic characters on two leaves, which are carefully preserved, and on the death of the Indian, deposited in the grave with him.

The dead are buried in the huts. The survivors having testified their sorrow by a melancholy howl three times repeated, leave the place and build a new residence for themselves in a distant district. They break in pieces all the household furniture of the deceased, but they bury with him his warlike weapons and his agricultural implements, under the conviction that he will use them in the place to which he is going. A peculiar custom among several races is this: the oldest son cuts a piece from the heel of his deceased father, which he hangs round his neck, and wears as a sacred relic. Some of the tribes on the Perene and Capanegua do not, like most wild nations, respect the remains of the dead, but throw the bodies into the forest unburied, to be devoured by beasts of prey.

Very little is correctly known of the religion of the Peruvian Indios Bravos. All believe in the existence of superior beings, and distinguish them as good and evil; and they are accordingly venerated from gratitude, or from fear. The former they regard as beneficent; but the latter as having the power of bringing into exercise all the destroying forces of nature. These people, therefore, find in the sky, in the air, and on the earth, objects for their adoration. Certain constellations are regarded as favorable phenomena, while others are looked at with a secret horror. The sun is by all gladly worshipped, more particularly by the descendants of those who in early times stood in connexion with the Incas. On the other hand, they pay but a reluctant tribute to the moon, perhaps because by its pale light fearful

images are reflected around them in the forests, and because its phases are to them involved in impenetrable mystery. They ascribe thunder and lightning to demoniacal influences, and to the same origin they attribute certain winds which have an injurious influence on their health. But their religious notions are not connected exclusively with the phenomena of nature, which are to them inexplicable. With all their ideas on surrounding nature, two conflicting principles are invariably connected, one of which is believed to be beneficial, the other injurious to them. In the animals of the forest, the plants, the stones, in everything, they trace these beneficent or demoniacal powers. Every idea, every action is with them a consequence of the influence of one of these two powers, and free will is impossible. Though a rude materialism crippies the intelligence of these Indians, yet they seem to be sensible of the connexion between that which is perceptible to their senses, and something higher—something beyond the sphere of corporeal perception. But of the nature of this higher something they have no comprehension, nor do they endeavor to render to themselves any account of it. They are satisfied with an obscure idea of the difference between the visible and the invisible; but still this idea is so contracted that they always give to the spiritual a corporeal form: and they attribute to natural objects with which they come most in contact, the possession of good or evil qualities, thus assigning to them the nature of spiritual beings.

None of these tribes appear, as yet, to have advanced so far as to be impressed with the persuasion that the whole of nature is guided by unchangeable laws over which one will presides. In general, they have no idea of a spiritual unity, and are utter strangers to the knowledge of one God. They all, however, believe in the immortality of the soul. They see the lifeless body, they have certain proof that the earthly integument is no longer the abode of the soul; but, as they can form no notion of anything spiritual entirely self-existent, they imagine that their dead will, in new life, appear under a new bodily form. The several tribes differ greatly in their belief of the nature of the metamorphoses which they expect to take place. Those who look forward to the re-appearance of the deceased in human life, bury

with the men hunting and agricultural instruments; but their notions even on this head are not very clear, and when questioned on the subject their answers are very confused. They say that they are going to a very beautiful place, far from their present dwelling; but, according to their conception, it appears that the place, though distant, is still on earth. Those races who believe in metamorphoses into the forms of the lower animals, are persuaded that the dead in their new forms will inhabit the woods around their homes, and avenge the wrongs they have suffered during life. This is the belief of the inhabitants of Upper Ucayali and Pachitea.

In considering the physical formation of the wild Indians, we may class them according to their natural divisions, viz., the inhabitants of the more highly situated lands, or mountains, and those of the low hot flat country. The former dwell on the eastern side of the hill-chain, dividing the river territory of the Huallaga and Ucayali, and spreading to the banks of the Chauchamayo, Perene, and Apurimac. These are the Iscuchanos. They are rather tall and generally slim; their limbs are vigorous; their hands and feet small, and in walking their toes are much turned in. The head is proportionally large, with very strong bones; the forehead is low, the eyes small and animated, the nose large and rather sharp, the cheek-bones a little prominent. The mouth is not large, and the lips are delicately formed, but often disfigured by ornaments. The ears are small, quite the reverse of those of the Indians of the flat lands. The pointed chin is only sparingly covered with beard, which does not appear until advanced age, and on the cheeks there is none. The hair of the head is long, stiff, and of a brilliant black. Many of the tribes dye their hair; the Chunchos dye it red, and the Antis are said to dye it blue; as to the latter color it appears to me improbable, but I mention it on the authority of Friar Leceta. The skin is fine and soft, the color a deep rusty brown. In speaking of the South American Indians, it is usual to describe their skin as copper color, but this term is incorrect, for there certainly is no single tribe to which it might be perfectly applicable. It appears to me that the color of all is much fainter,

and tending more to brown or yellow. "Rusty brown," if the expression may be used, appears to me far more descriptive.

The second natural section of the wild Indians inhabits the northern part of the Pampa del Sacramento, the banks of the Ucayali, and of the Marañon. They are smaller than those just described. There is a certain peculiarity in the make of these people; for though they are broad over the shoulders yet their chests are flat, and their shoulder blades lie low. Their limbs are lank, and their hands rather small; the soles of the feet are broad and flat. The face is broad, the eyes long shaped, the pupil deeply set, the nose is flat, with large oblique nostrils, and the cheek-bones are prominent. The mouth is wide, the lips thick, and among some tribes the mouth and nose are very close together. The chin is small and round, the ears large and standing out from the head. The hair and beard of these Indians are the same as in those of the hilly country. The color of the skin varies much; in some it is a light reddish brown; in others, a kind of yellow, very like that of the Mongols. The women of all these tribes are exceedingly ugly, and far from corresponding with the picture a European imagination might form of the daughters of the aboriginal forests. These women soon become old, for they not only fulfil female duties, but execute the greater part of those severer labors which ought to fall to the share of the stronger sex.

To the above outline sketch of the human inhabitants of the aboriginal forests, I will now add some description of the animal world, as it came under my observation in those luxuriant regions.

Unlike the peaceful repose which presides over animal life on the level heights, are the constant aggressions and combats which prevail in the forest regions. There the strong attack the weak, and the cunning inveigle the unwary: strength and intelligence, caution and instinct, are unceasingly in active operation. The variegated forms and colors which meet the eye, and the multifarious cries and tones which resound through the woods, form, altogether, the most singular contrast. The gold-feathered colibri hums lightly through the air, soaring over the heavy, sombre-colored *tapir*. The sprightly singing-bird pours forth his melo-

dious chants amidst the thick foliage of the aged trees, whilst the fierce ounce, prowling for his prey, growls as he passes over their enormous, spreading roots. Slowly do the eye and the ear learn to distinguish individuals in the vast mass of apparent chaotic confusion, and to recognise quickly fleeting forms, or distant resounding sounds.

The whole of the animal world is here developed to the view, and it would be difficult to assign the predominance to any one class. Yet, perhaps, the variegated feathered tribe is relatively most extensively represented. The number of the mammalia is also important. They are seldom seen by the hunter during the day, but twilight draws them from their hiding-places.

Troops of monkeys skip from tree to tree, looking timidly around, and uttering mournful howls. Among them are swarms of the black marimonda (*Ateles*), with slender long arms and red-brown or black faces; in some the faces are encircled with white hair (*Ateles marginatus*, Geoff.), which gives them a striking resemblance to an old negro. Next is seen a group of silver-grey monkeys (*Lagothrix Humboldtii*, Geoff.), stalking over heaps of broken branches and twigs in search of a resting-place. These monkeys, which are the largest in South America, are about three feet high, and are bold and vicious. When wounded they take a position of defence against the hunter, struggling, and uttering loud cries, upon which their companions hasten down from the trees to assist them. But soon a short stifled cry is heard: it is the cry of mortal convulsion. That sound drives them instantly back, and they disperse in wild flight. The sly sayu ventures to approach the dwellings of men, where he plunders maize fields with incredible dexterity. The delicate silky-haired monkey, shivering at every cool breeze or shower of rain, and starting at the slightest noise, creeps for shelter into the thicket, where he lies peeping with his penetrating eyes in the direction of the apprehended danger.

At sunset swarms of bats flutter through field and forest in all directions, and greedily devour the insects which in the twilight awaken to full activity. Some of these bats (*Phyllostoma hastatum*, Geoff.) are remarkable for their expanse of wing, which measures nearly two feet. Others are distinguished for ugli-

ness and for their offensive smell. These latter fly into the Indian huts at night and greatly annoy the inhabitants, who cannot get rid of them by fire or smoke, or any other means, until at the midnight hour they retire of their own accord. Not less troublesome are the leaf-nosed bats (*Phyllostoma*), which attack both man and beast. This bat rubs up the skin of his victim, from which he sucks the blood. The domestic animals suffer greatly from the nocturnal attacks of these bats, and many are destroyed by the exhaustion consequent on the repeated blood-sucking. The blood drawn by the bat itself does not exceed a few ounces; but if, when satisfied, it drops down to the ground, or flies away, the wound continues to bleed for a long time, and in the morning the animal is often found in a very weak condition, and covered with blood. One of my mules, on which a leaf-nosed bat made a nightly attack, was only saved by having his back rubbed with an ointment made of spirits of camphor, soap and petroleum. The blood-suckers have such an aversion to the smell of this ointment that on its application they ceased to approach the mule. These bats are very mischievous in the plantations of the forests, where beasts of burden and horned cattle are exposed to their attacks. Whether they venture to assail man has been a much disputed question. Several travellers declare that they do not. I may, however, mention a case which occurred within my own knowledge. A bat (*Ph. erythromos*, Tsch.) fastened on the nose of an Indian lying intoxicated in a plantation, and sucked so much blood that it was unable to fly away. The slight wound was followed by such severe inflammation and swelling that the features of the Cholo were not recognisable.

Many beasts of prey, and among them some of formidable strength and fierceness, make havoc among the other animals of the forests. In the lofty Montañas the black bear (*U. frugilegus*, Tsch.) roams as wild as his fellow-depredator of the Cordillera. He often enters the maize fields of the Indians, breaks the stalks of the plants and drags the green tops away to his hole. When this bear cannot obtain his customary vegetable food, consisting chiefly of the fruits of a pandanea (*Phytelephas*), he watches for the deer and wild boars, or attacks the oxen employed to turn

the machinery in the sugar-mills: he has even been known to assail solitary travellers. The lively coatis traverse the forests in flocks. They collect round the roots of trees and search for the larvæ of insects; light-footed, they climb up bush and tree to find birds' nests, and feast on the eggs and the young. With a monotonous howl, not unlike that made by some dogs on a clear moonlight night, the yellow-breasted glutton (*Galictis barbara*, Wieg.), the omeyro of the Indians, announces his presence. But the most fierce of all these wild forest animals are those of the feline class. The spotless dark-grey yaguarundi, not much larger than the wild cat of Europe, pursues all kinds of birds, particularly the pigeon, the partridge, and the penelope. The oscollo (*F. celidogaster*, Tem.), the uturunca (*F. pardalis*, L.), and the long-tailed, yellowish-grey tiger-cat (*F. macrourura*, Pr. M.), all lie in wait, not only for the weaker mammalia, but sometimes they even venture into the plantations and kill dogs and poultry. The maneless Mexican Lion (the puma) roams through the upper regions of the forest, where he has almost undisputed hunting-ground. He fearlessly assails victims who cannot effectually defend themselves, such as the horse, the mule, and the ass, and he tears large pieces of flesh from their ribs; but he does not venture to meddle with oxen. He shuns men, and in the forest he even flies from the unarmed Indian. I fired at a very large puma, which immediately fled, roaring loudly. When severely wounded and driven into a corner, this animal frequently commences a combat of despair, and sometimes kills the hunter. The puma measures in length about four feet, and in height more than two feet. More direful than any of the felines mentioned above is the sanguinary ounce,* which possesses vast strength, and is of a most savage disposition. Though the favorite haunts of this animal are the expansive Pajonales, yet he frequently takes up his abode in the vicinity of villages and plantations, spreading terror among the inhabitants. Far from being intimidated at the sight of men, he often attacks individuals, and when pressed by hunger is not

* The Indian name for this animal is *Chaque chinca*. The black variety *Yana chinca* is called by the Spaniards Tigre or Yaguar.

afraid, even in broad daylight, to slip into the forest villages in order to carry off food, and the booty, when once seized, is not easily recovered.

An amusing example of this occurred in the Montaña of Vitoc. An Indian one night heard his only pig squeaking loudly, as if in pain. He hastened to the door of his hut to see what was the matter, and he discovered that an ounce had seized the pig by the head, and was carrying it off. The Cholo, who determined to make an effort to recover his property, seized the pig by the hind legs, and endeavored to drag it from the grasp of the robber. This contest was kept up for some time, the ounce, with his eyes glaring in the darkness, holding fast the head of the pig, and the Indian pulling it hard by the legs. At length the Indian's wife came to the door of the hut with a lighted fagot, and the scared ounce, with terrible howlings, slowly retired to the forest. In general the Indians have a great dread of these animals, and seldom venture singly into the parts they frequent. The ounce hunter is the only one who ventures to approach them. He is armed with a long spear, with which he gives the ferocious animal a death-blow. He lets the ounce come within a few paces of him without making the least show either of flight or attack. If, however, the stroke he aims does not immediately reach the seat of life, the hunter, in general, becomes the victim of his bold attempt. Before he can stand on his defence, the wounded ounce drags him to the ground, and tears the flesh from his bones.

Sometimes the villagers collect their dogs together for a general hunt. They drive the ounce into a place from whence there is no escape, or often up a tree, where they shoot him with long arrows sent from their bows or blow-tubes. In a few places snares are laid, or large holes are dug, and a sharp-pointed stake is stuck in the middle, covered with stalks and branches of trees, on which the bait is laid. The ounce is, however, too cunning to be easily caught in traps, and it is only when pressed by hunger that he can be tempted by a bait. In some districts the ounces have increased so greatly, and done so much damage, that the natives have been compelled to remove and settle in other places. I need only refer to the Quebrada of Mayun-

marca, in the Montaña of Huanta, near the road to Anco. There once stood the little village of Mayumarca, which has been abandoned for more than a hundred years, as it was found that the jaguars annually decimated the inhabitants; this Quebrada is still in such bad repute that not a single Indian will venture into it.

There is a black variety of the ounce, by many erroneously regarded as a distinct species. It has the identical marks of the common jaguar, or ounce, only its color is a dark, blackish-brown, whereby the whole of the black spots are rendered indistinct. On the lower banks of the Ucayali and the Marañon this dark variety is more frequently met with than in the higher forests; in the Montañas of Huanta and Urubamba it is also not uncommon. It is upon the whole larger, stronger, and more daring than the lighter kind, and I have actually seen many black skins which exceeded the usual length; but of specific distinctions there is no indication. The superstitious Indians assign extraordinary powers to everything that departs from the common course; the black ounce is, accordingly, supposed to possess singular properties. The yana chinca holds a prominent place in the religious ceremonies of some of the Indian races.

Turning from these fierce natives of the forest, we will now take a glimpse at the peaceful inhabitants of those umbrageous regions. In the hollow stems of trees, or among their canopied branches, are found the timid marsupial animals (*Did. impavida*, and *noctivaga*, Tsch.). These animals remain in obscure holes until the sun sinks beneath the horizon, when they slip out in search of insects and fruit. Not unfrequently they penetrate into the slightly guarded Indian huts, creeping into every corner, until at last they are caught in traps baited with pieces of banana and pine-apple. The lofty *Terebinthaceæ*, with their walnut-like fruit, are inhabited by swarms of squirrels, which strongly remind the European of his own woods. Numbers of the mouse family, from the small tree-mouse (*Drymomys parvulus*, Tsch.) to the large, loathsome, spinous rat (*Echinomys leptosoma*, Wagn.) swarm over all the Montañas, and love to approximate to the dwellings of man. These animals destroy the gathered harvest, and even in these remote regions they become a plague. It is a striking fact, that certain animals are almost inseparable from

man. They keep with him, or follow him wherever he settles. The mouse genus is one of these. On the coast, mice are not the same as on the mountains, and in the forests they are again different. Everywhere they leave their original dwelling-places, which they exchange for an abode with man. As the mouse and the rat attack the gathered fruits of the earth, the agouti preys on those yet standing in the field. These animals are seldom found in the depths of the forest, but more frequently on its edge near the chacras of the Indians. Shortly before sunset they leave the thickets, and stealthily repair to the maize, yucca, and anana fields, where they scratch up the root and eat the grain and fruit; but the slightest noise drives them back to their holes. In the deeper recesses of the forest resounds the monotonous, drawling cry of the sloth. Here we have a symbol of life under the utmost degree of listlessness, and of the greatest insensibility in a state of languid repose. This emblem of misery fixes itself on an almost leafless bough, and there remains defenceless; a ready prey to any assailant. Better defended is the scale-covered armadillo, with his coat of mail. Towards evening he burrows deep holes in the earth, and searches for the larvæ of insects, or he ventures out of the forest, and visits the yucca fields, where he digs up the well-flavored roots. The ant-eater rakes up with his long curved claws the crowded resorts of ants, stretches out his long, spiral, and adhesive tongue, into the midst of the moving swarm, and draws it back covered with a multitude of crawling insects.

In the soft marshy grounds, or in the damp shady recesses of the forests, the heavy tapir reposes during the heat of the day; but when the fresh coolness of evening sets in, he roves through the forest, tears the tender twigs from the bushes, or seeks food in the grass-covered Pajonales. Sometimes a multitude of tapirs sally from the forests into the cultivated fields, to the great alarm of the Indians. A broad furrow marks the tract along which they have passed, and the plants they encounter in their progress are trampled down or devoured. Such a visit is particularly fatal to the coca fields; for the tapirs are extremely fond of the leaves of the low-growing coca plant, and they often,

in one night, destroy a coca field which has cost a poor Indian the hard labor of a year.

Flocks of the umbilical hog, or peccary, traverse the level Montañas. If one of them is attacked by the hunter, a whole troop falls furiously on him, and it is only by promptly climbing up a tree that he can escape; then, whizzing and grunting, they surround the stem, and with their snouts turn up the earth round the root, as if intending to pull down the tree and so get at their enemy. The stag lurks in the thicket to withdraw from the eyes of the greedy ounce; but towards evening he leaves his hiding place, and sometimes strays beyond the boundary of the forest; he ventures into the maize fields of the plantations, where he tarries until night is far advanced.

The same diversity of nature and habits is seen in the numerous hosts of birds that inhabit the leafy canopies of the forest. On the loftiest trees, or on detached rocks, eagles, kites, and falcons, build their eyries. The most formidable of these birds of prey, both for boldness and strength, the *Morphnus harpyia*, Cab., darts down on the largest animals, and fears not to encounter the fiercest inhabitants of the forest. The owl (*Noctua*, *Scops*, *Strix*), and the goat-milker (*Caprimulgus*, *Hydropsalis*, *Chordiles*), fly with softly flapping wings to their hunting quarters to surprise their victims while asleep. In the hilly parts of the Montañas the black ox-bird (*Cephalopterus ornatus*, Geoff.), the *Toropishu* of the Indians, fills the forest with his distant bellow, similar to the roaring of a bull. The *Tunqui** inhabits the same district. This bird is of the size of a cock; the body is bright red, but the wings are black. The head is surmounted by a tuft of red feathers, beneath which the orange bill projects with a slight curve. It lives sociably with other birds in thickets, or among Cinchona trees, the fruit of which is part of its food. Its harsh

* *Rupicola peruviana*, Ch. Dum. The color of the female is reddish brown, and she is named by the natives *Tunqui mulato;* the male is called *Tunqui colorado*. In some parts of the Montaña the *Cephalopterus ornatus* is called *Yana Tunqui*. Thus, even the Indians have observed the relationship of these birds, which, classed according to our system of *natural history*, actually belong to one family, the *Ampelidæ*. Their affinity is indicated very correctly by the Indian name.

cry resembles the grunt of the hog, and forms a striking contrast to its beautiful plumage. Numberless fly-catchers and shrikes (*Muscicapidæ* and *Laniadæ*) hover on tree and bush, watching for the passing insects, which they snatch up with extraordinary dexterity. Finches twitter on the summits of the loftiest trees beyond the reach of the hunter's shot: they are distinguished, like the *Ampelidæ*, who, however, live amongst the lower bushes, by the lively and almost dazzling colors of their feathers. In modest plumage of cinnamon-brown, with head and neck of dark olive, the *Organista** raises, in the most woody parts of the forest, her enchanting song, which is usually the prognostic of an approaching storm. The tender, melancholy strains and the singular clearness of the innumerable modulations charm the ear of the astonished traveller, who, as if arrested by an invisible power, stops to listen to the syren, unmindful of the danger of the threatening storm. On old decayed stumps of trees the busy creeper† and the variegated woodpecker are seen pecking the insects from under the loose bark, or by their tapping bring them out of their concealed crevices; while the red-tailed potter-bird (*Opetiorynchus ruficandus*, Pr. Max.) builds his dwelling of potter's clay, or loam, as firmly as if it were destined to last for ever. The pouched starlings‡ hang their nests, often four or five feet long, on the slender branches of trees, where they swing to and fro with the slightest breath of wind. Like a dazzling flash of colored light the colibri (humming-bird) appears and disappears. No combination of gorgeous coloring can exceed that which is presented in the plumage of the golden-tailed humming or fly-bird (*Trochilus chrysurus*, Cuv.) which haunts the warm primeval forests, but it is still more frequently found in the pure atmosphere of the ceja-girded Montañas. The silky cuckoo (*Trogon heliothrix*, Tsch.) retires into the thickest masses of

* The Organistas of Peru, Brazil, and Guiana, &c., mentioned by so many travellers, all belong to the family of the Troglodytinæ, to the two genera, *Troglodytes*, Vieill, and *Cyphorhinus*, Cab. The Peruvian Organista above alluded to, is the *Troglodytes leucophrys*, Tsch. In Guiana it appears to be the *Cyphorhinus carinatus*, Cab.

† *Xenops*, *Anabates*, *Dendrocolaptes*, and many other kinds of *Capito* and *Picus*.

‡ These are different kinds of *Cassicus* and Icterus.

foliage, from which its soft rose-colored plumage peeps out like a flower. The cry of the voracious chuquimbis* accompanies the traveller from his first steps in the Montañas to his entrance into the primeval forests, where he finds their relative, *Dios te de.*† This bird accompanies its significant cry by throwing back its head and making a kind of rocking movement of its body. The Indians, who are always disposed to connect superstitious ideas with the natural objects they see around them, believe that some great misfortune will befall any one who may shoot this bird, because it utters the sacred word, *Dios*. Long trains of green parrots fill the air with their noisy chattering. One kind of these birds (*Ps. mercenarius*, Tsch.) is remarkable for regular migrations. Every morning they sally forth in flocks from the upper to the lower forests, where they pass the day, and they regularly return before sunset to their roosting-places. From year to year these parrots leave their night quarters daily at the same hour, and return with equal punctuality before sunset. This regularity of departing and returning has caused the natives to give them the name of *Jornaleros* (day-laborers). From the depth of the forests sounds often arise which resemble human voices, and the astonished hunter then believes that he is in the vicinity of his companions, or, perhaps, of hostile Indians. He eagerly listens, and it is only when well acquainted with the sounds of the winged inhabitants of the woods that he can recognise the melancholy tones of the wood-pigeons (*C. infuscata*, Licht.; *C. melancholica*, Tsch.). When day begins to depart, groups of the pheasant-like Hachahuallpa‡ assemble, and with the cry of *Ven acá, Ven acá,*§ summon their distant companions.

Not only are the trees of the forests peopled with myriads of birds, but the earth has also its feathered inhabitants, who sel-

* Kinds of Pteroglossus. Those most frequently met with in the Montañas are the *Pt. atrogularis*, Sturm; *Pt. cæruleocinctus*, Tsch. (*Aulacorhynchus*, Orb.); and *Pt. Derbianus*, Gould.

† *Dios te de* signifies *May God give it thee.* The sound which is interpreted, *Dios te de* resembles very much the cry of most of the Toucans, or pepper-eaters.

‡ Several kinds of Penelope.

§ *The cry* of this bird closely resembles the Spanish words *Ven acá (Come hither).*

dom soar above the level of the soil. They build their nests among the roots and fallen branches, and depend for movement more on their feet than on their wings. Among those members of the winged tribe, who show no disposition to soar into the regions of air, we find here the turcassa, a pigeon with richly-shaded plumage; the beautifully speckled toothed fowl (*Odontophorus speciosus*, tsch.), and short-tailed grass fowl, or crake,* whose flesh when cooked is delicately white and finely flavored. In marshy places and on the slimy banks of rivers, the jabiru (*Mycteria americana*, L.) loves to wade, together with the rose-colored spoon-bill (*Platalea ajaja*, L.); the fish-devouring ibis (*Tantalus loculator*, L.), the curved-billed snipe (*Rhynchoea Hilærea*, Val.), the party-colored cranes, plovers, land-rails, shrites, and even sea-swallows.† In the rivers there are ducks: these birds are, perhaps, carried down by the currents from the Andes, or, possibly, they fly in great trains from the inner waters of Brazil.

Of the amphibia in the principal forests of Peru, only the great fresh-water tortoise (*Hydraspis expansa*, Fitz.) is useful to the natives. On the sandy banks of rivers this animal buries its eggs, from which the Indians extract oil: its flesh, also, supplies well-flavored food. All other animals of this class are objects of terror, or at least of aversion, to the Indians. In the warm sand of the river banks, lies the lazy caiman.‡ He keeps his jaws wide open, only closing them to swallow the innumerable flies which he catches on his tongue. To the helplessness of these animals when on land, the natives have to be thankful that they are not the most dangerous scourges of the forest: in water, their boldness and swiftness of motion are fearful. The number of lizards here is not great, nor do they attain so considerable a size as in other equatorial regions. The serpents are to be feared, and on approaching them, it is not easy to decide at the first view whether they belong to a poisonous or innoxious species. In the forests, where the fallen leaves lie in thick, moist layers, the foot of the hunter sinks deep at every step. Multitudes of

* Seven species of Crypturus.

† *Sterna erythrorhynchos*, Prince Max., *St. magnirostris*, Licht.

‡ *Champsa fissipes, sclerops et nigra*, Wagl.

venomous amphibia are hatched in the half-putrescent vegetable matter, and he who inadvertently steps on one of these animals may consider himself uncommonly fortunate if he can effect his retreat without being wounded. But it is not merely in these places, which seem assigned by nature for their abode, that loathsome reptiles are found: they creep between the roots of large trees, under the thickly interwoven brushwood, on the open grass plots, and in the maize and sugar-cane fields of the Indians: nay, they crawl even into their huts, and most fortunate is it for the inhabitants of those districts that the number of the venomous, compared with the innoxious reptiles, is comparatively small. Of the poisonous serpents, only a few kinds are known whose bite is attended with very dangerous consequences. The *Miuamaru*, or *Jergon* (*Lachesis picta*, Tsch.), is, at most, three feet long, with a broad, heart-shaped head, and a thick upper lip. It haunts the higher forests, while in those lower down his place is filled by his no less fearful relative *Flammon* (*Lachesis rhombeata*, Prince Max.), which is six or seven feet in length. These serpents are usually seen coiled almost in a circle, the head thrust forward, and the fierce, treacherous-looking eyes glaring around, watching for prey, upon which they pounce with the swiftness of an arrow; then, coiling themselves up again, they look tranquilly on the death-struggle of the victim. It would appear that these amphibia have a perfect consciousness of the dreadful effect of their poisonous weapon, for they use it when they are neither attacked nor threatened, and they wound not merely animals fit for their food, but all that come within their reach. More formidable than the two snakes just described, but happily much less common, is the brown, ten-inch long viper.* It is brown, with two rows of black circular spots. The effect of its bite is so rapid, that it kills a strong man in two or three minutes. So convinced are the natives of its inevitably fatal result, that they never seek any remedy; but immediately on receiving the wound, lay themselves down to die. In the Montañas of Pangoa this viper abounds more than in any other district, and never

* *Echidna ocellata*, Tsch. This is the only species of the viper family belonging to South America, as yet known.

without apprehension do the Cholos undertake their annual journey for the coca harvest, as they fear to fall victims to the bite of this viper. The warning sound of the rattlesnake is seldom heard in the hot Montañas, and never in the higher regions.

Nature, who in almost all things has established an equilibrium, supplies the natives with remedies against the bite of the serpent. One of the cures most generally resorted to is the root of the amarucachu (*Polianthes tuberosa*, L.), cut into slips and laid upon the wound. Another is the juice of the creeping plant called vejuco de huaco (*Mikania Huaco*, Kth.), which is already very widely celebrated. This latter remedy was discovered by the negroes of the equatorial province, Choco. They remarked that a sparrow-hawk, called the *huaco*, picked up snakes for its principal food, and when bitten by one it flew to the vejuco and ate some of the leaves. At length the Indians thought of making the experiment on themselves, and when bitten by serpents they drank the expressed juice of the leaves of the vejuco, and constantly found that the wound was thereby rendered harmless. The use of this excellent plant soon became general; and in some places the belief of the preservative power of the vejuco juice was carried so far that men in good health were inoculated with it. In this process some spoonfuls of the expressed fluid are drunk, and afterwards some drops are put into incisions made in the hands, feet, and breast. The fluid is rubbed into the wounds by fresh vejuco leaves. After this operation, according to the testimony of persons worthy of credit, the bite of the poisonous snake fails for a long time to have any evil effect. Besides the two plants mentioned above, many others are used with more or less favorable results. The inhabitants of the Montaña also resort to other means, which are too absurd to be detailed here; yet their medicines are often of benefit, for their operation is violently reactive. They usually produce the effect of repeated emetics, and cause great perspiration. There is much difference in the modes of external treatment of the wound, and burning is often employed. I saw an Indian apply to his wife's foot, which had been bitten, a plaster, consisting of moist gunpowder, pulverised sulphur, and finely-chopped tobacco, mixed up together. He laid this over the wounded part and set

fire to it. This application, in connexion with one of the nausea-exciting remedies taken inwardly, had a successful result.

Innoxious snakes* wind on tendrilled climbing plants, or lie like necklaces of coral on the brown decayed leaves (*Elap. affinis*, Fitz.). Where the branches of rivers enter the gloomy forests and form little narrow lagunes, over which the high trees spread in vaulted cupolas almost impervious to the light of day, there dwells the powerful giant snake (*Eunectes murinus*, Wagl.), called by the Indians, in their figurative language, *yacumaman*, "mother of the waters." Stretched in listless repose, or winding round the stem of an old tree, bathing her tail in the cool lagune, she watches wistfully for the animals of the forest who come to the waters to quench their thirst. Whilst she gazes at her distant prey, the fascinating power of her eyes seems to subdue the trembling victim, and, unable even to attempt escape, he falls an easy sacrifice.

The amphibia of the frog species, which lie concealed in silent repose during the day, raise, after sunset, their far-sounding voices. The violet colored throat-bladder (*Cystignathus silvestris*, Tsch.) maintains his loud, uniform croak beneath the bushes, or penetrates into the huts of the inhabitants. The *trapichero*, or sugar-mill frog, is a large species, almost half a foot in length. Its croak resembles very much the grating sound caused by the working of a sugar mill, for which reason the natives have given it the name of trapichero, or the *sugar-miller*. The croaking of these frogs, whose manifold tones blend together in confused union, augments not a little the distressing dreariness of a forest night.

Of the numerous species of insects which swarm in these regions, few are remarkable for beauty; but many fix attention by their peculiar habits. The bites and stings of numbers of them are very dangerous, and it requires much caution to guard against their attacks.

Variegated butterflies flutter noiselessly among the spreading branches of the trees, or sun themselves on the warm masses of fallen leaves. The most remarkable of these butterflies is the

* *Sphenocephalus melanogenys*, Tsch.; *Lygophis Reginae*, Wagl.; *L. taeniurus*, Tsch.; *L. elegans*, Tsch.

large atlas, whose brilliant blue tints shine out with lustrous radiance in the dim light of the forest. Along the banks of rivers, and especially in hot marshy spots, small musquitoes swarm. The bite of this animal produces an intolerable burning sensation, and often causes considerable inflammation. But more troublesome, and also much more numerous, are the stinging-flies (*sancudos*). On my first arrival in the Montaña, I lay several days exceedingly ill in consequence of severe swelling of the head and limbs, caused by the bites of these insects. To the inhabitant of the forest the sancudos are an incessant torment. In no season of the year, in no hour of the day or night, is there any respite from their attacks. Rubbing the body with unctuous substances, together with the caustic juicesof certain plants, and at night enclosing one's self in a tent made of *tucuyo* (cotton cloth), or palm-tree bast, are the only means of protection against their painful stings. The clothes commonly worn are not sufficient, for they are perforated by the long sting of the larger species, particularly of the much-dreaded *huir-pasimi-sancudo* (Lip-gnat). Regularly every evening at twilight fresh swarms of these mischievous insects make their appearance.

The ticks (*ixodes*) are a class of insects destined by nature for the suction of plants; but they often forsake trees, shrubs, and grasses, to fasten on man and other animals. With their long sharp stings they make punctures, in which they insert their heads, and thereby occasion very painful sores. These insects appear to have no preference for any particular class of animals. They are often found on the hair of dead mammalia, and among the feathers of birds which have been shot; even the toad, the frog, and the scaly lizard are not spared by them. Much more troublesome than these insects are the antanas, which are not visible to the naked eye. They penetrate the surface of the skin, and introduce themselves beneath it, where they propagate with incredible rapidity; and when some thousands of them are collected together, a blackish spot appears, which quickly spreads. If these insects are not destroyed when they first introduce themselves into the punctures, they multiply with incalculable rapidity, destroying the skin, and all the tender parts in contact with it. Washing with brandy, which is often found to

be a remedy against the less mischievous isancos, is not sufficient for the removal of the antanas. For their extirpation the only effectual remedy is frequently bathing the part affected with a mixture of spirits of wine and corrosive sublimate.

Who can describe the countless myriads of ants which swarm through the forests? Every shrub is full of creeping life, and the decayed vegetation affords harbor for some peculiar kinds of these insects. The large yellow *puca-çiçi* is seen in multitudes in the open air, and it even penetrates into the dwellings. This insect does not bite, but its crawling creates great irritation to the skin. The small black *yana-çiçi*, on the contrary, inflicts most painful punctures. A very mischievous species of stinging ant is the black *sunchiron*. This insect inflicts a puncture with a long sting, which he carries in the rear of his body. The wound is exceedingly painful, and is sometimes attended by dangerous consequences. My travelling companion, C. Klee, being stung by one of these ants, suffered such severe pain and fever, that he was for a short while delirious. A few nights afterwards, a similar attack was made on myself during sleep. It suddenly awoke me, and caused me to start up with a convulsive spring. I must confess that I never, in my whole life, experienced such severe pain as I did at that moment.

A most remarkable phenomenon is exhibited by the swarms of the species called the *ñaui-huacan-çiçi*,* the great *wandering ant*. They appear suddenly in trains of countless myriads, and proceed forward in a straight direction, without stopping. The small, the weak, and the neuters are placed in the centre, while the large and the strong flank the army, and look out for prey. These swarms, called by the natives *Chacus*, sometimes enter a hut and clear it of all insects, amphibia, and other disagreeable guests. This work being accomplished, they again form themselves into a long train, and move onwards. The united force of these small creatures is vast, and there is no approach to the fabulous, when it is related that not only snakes, but also large mammalia, such as agoutis, armadillas, &c., on being surprised

* From *ñaui*, the eye, *huacay*, to cry, and *çiçi*, the ant;—so called by the Indians, because the pain of its numerous stings brings tears into the eyes.

by them, are soon killed. On the light dry parts of the higher Montañas we find the large conical dwellings of the termes so firmly built, that they are impenetrable even to rifle shot. They sometimes stand singly, sometimes together, in long lines. In form they strongly resemble the simple, conical Puna huts.

Before leaving the animal kingdom of these forest regions, which I have here sketched only briefly and fragmentally, I must notice two insects, the *Cucaracha* and the *Chilicabra*, species of the Cockroach (*Blatta*). They are exceedingly numerous and troublesome. The Cucaracha, which more particularly infests the deep regions of the forest, is an inch and a half long, and above half an inch broad; it is reddish brown, with a yellow neck. The Chilicabra, though smaller, is more mischievous, by reason of its greater numbers. They settle in the huts, where they destroy provisions, gnaw clothes, get into beds, and into the dishes at meal time. These insects defy every precaution that can be taken against their tormenting attacks. Luckily, nature has provided enemies for their destruction. Among these is a small reddish yellow ant, called by the Indians, the *Pucchuçiçi*, a useful member of the ant family, for it pursues and destroys the mischievous cockroaches. There is also a very elegant little bird, called the *Cucarachero* (*Troglodytes audax*, Tsch.) which wages war against these insects. On seizing one of them it first bites off the head, then devours the body, and throws away the tough wings. These operations being completed, it hops to the nearest bush, and tunes its melodious song, the sounds of which closely resemble the words "*Acabe la tarea!*" a name which the Indians give to this bird.* I could yet fill many pages with descriptions of insects which are dangerous or troublesome, and among them are included the julus, measuring six inches in length, the large black and red scorpion, not forgetting the numerous poisonous wasps and the cicadas. However, those which have been noticed will suffice

* "*Acabe la tarea*" may be translated "*My task is finished.*" But the Indians are not very consistent in their interpretations of the song of the *Cucarachero*; for in some districts, they contend that it repeats the words —*Casa te Soltera*, "*Go and get married, Maiden.*"

to afford an idea of the ever-active movements of animal life in the forests.

Willingly would I take a view of the vegetation of the virgin forests, and attempt to sketch its progressive developments and alternations from the hilly Montañas of the eastern declivities of the Andes to the humid level banks of the larger rivers; but I do not feel myself competent to undertake a labor to which former travellers intimately acquainted with the world of plants have already rendered full justice.* Being devoted to the study of zoology, and, unfortunately, too little familiar with botany, I have confined myself to a description of the general impression produced by the luxuriant growth of the soil, without entering into the individualities of the vegetation. In the more highly situated Montañas, where the cinchona is found in the place of its nativity, the gigantic orchidæ, the numerous fern plants, the tree-like nettles, the wonderful bignonias, and the numerous, impenetrable complications of climbing plants, powerfully rivet the attention of the observer. Lower down, in the lighter forest soil, amidst numerous shrubs and climbers, the eye delights to dwell on the manifold forms of the stately palm, on the terebinthaceæ, on the thickly-leaved balsam-yielding leguminosæ, on the luxuriant laurels, on the pandaneæ or the large-leaved heliconias, and on the solaneæ, with their gigantic blossoms and thousands of flowers. Descending still further, the flat lands of the forest assume a dark and gloomy aspect. The massive foliage of trees overarches stems which are the growth of centuries, and form a canopy almost impervious to the light of day. On the slimy soil no small shrub uprears its head, no flowering plant unfolds its blossom. The mighty trees stand alone, and erect in rows, like gravestones in a churchyard; and the child of darkness—the rapidly-shooting mushroom—finds genial nurture on the warm humid earth.

* A. von Humboldt, von Martius, and, in particular, Pöppig, who has published a narrative of his journey through Peru, distinguished by its precision, and written in a style so elegant and simple that its perusal *affords* the utmost interest and pleasure.

CHAPTER XV.

Montaña of San Carlos de Vitoc—Villages—Hacienda of Maraynioc—the Coca Plant—Mode of Cultivating and Gathering it—Mastication of Coca—Evil Consequences of its excessive Use—Its Nutritious Qualities—Indian Superstitions connected with the Coca Plant—Suggestions for its Introduction in the European Navies—Fabulous animal called the Carbunculo—The Chunchos—Missions to Cerro de la Sal—Juan Santos Atahuallpa—The Franciscan Monks—Depopulation of Vitoc.

THE Montaña of San Carlos de Vitoc is, without exception, one of the most interesting districts of Peru. It has on the one side, and at a short distance, the populous villages of the Sierra, and on the other it borders on the forests, through which the wild Indians range in their hunting excursions. It was formerly the principal key to the missionary stations of the Pampa del Sacramento, the Chanchamayo, Perene, and Upper Ucayali. It is only twenty leagues distant from Tarma, from whence the road leads through the fertile valley Acobamba, to Palca. Eastward of the latter place are the ruins of a fort, which in former times must have been a place of considerable importance. The wild Indians have repeatedly made hostile sallies from their forests, and it is only by this bulwark, which, with four small field-pieces, completely defends the narrow valley, that they have been checked in their advance on Tarma. An exceedingly steep path runs about a league and a half up the acclivity; then, becoming somewhat more level, it extends to the base of the crest, which at that part is about 14,000 feet above the level of the sea. Here the aspect of the Andes is by no means so imposing as that of the Cordillera, for the glaciers and steep rocky summits are wanting. The highest peaks rise only about 200 feet above the crest. As in the Cordillera, the eastern declivity inclines much more gently *than the western*, but the road is marshy, and is interspersed

with large hollows, into which the mules often fall and are killed. After passing over the Andes, two leagues further, we come to the hacienda Maraynioc, where numerous herds of cattle are kept. Round the hacienda there are potato plantations, and the potatoes reared here are so excellent, that they are celebrated throughout the whole Sierra. Every morning the sky is obscured by heavy clouds; it rains regularly two days in the week, and there are frequent falls of snow; yet notwithstanding this excessive humidity, a bad harvest is an event never to be apprehended. The cultivation of maize is, however, found to be impracticable here, for soon after germination the ears rot. A small stream flows past the hacienda, and after a course of about three leagues, it reaches the Montaña de Vitoc. Formerly, the road ran close along the bank of this stream, but in consequence of the repeated depopulation of Vitoc, it became neglected, and at length impassable. The way is now over the Cuchillo, or sharp edge of a mountain ridge, and it must be at least four times longer than the course formerly taken. From Maraynioc the road proceeds, for the length of a league, through a valley overgrown with brushwood, and then rises to a lateral branch of the Andes, which is almost as high as the main chain. The Indians call this ridge, *Manam rimacunan* ("Thou shalt not speak!"), for a heavy wind, accompanied by drifting snow, blows constantly, and renders it scarcely possible to open the mouth to utter a word. From Manarimacunan, downwards, to the lower Montaña, the road passes over stones laid in *echelon* form, and through a very slippery hollow way, which descends rapidly downward, and is surrounded by almost impenetrable woods; the only open and level place is the field of Chilpes, which is a few hundred paces long.

Here it is highly interesting to contemplate the rapid increase of vegetation, and the varied changes in the animal world. From the brink of a ridge where only feeble vegetation can be seen, we descend a few leagues and speedily find ourselves in the region of the Cinchona tree, and in the evening we are among lofty palms. The first human dwellings seen on entering the Montaña are half a dozen small huts, forming the hamlet Amaruyo, formerly called Sibis, and immediately after we come to the village of Vitoc. It consists of about fifty wretched huts, and has a

small church, in which worship is performed twice a year for the inhabitants of the whole valley.

Vitoc is surrounded by two rivers, which unite in a sharp angle, called the Tingo, and which separate the valley from the territory of the wild Indians. The valley is deep, and the surrounding heights are broken by many quebradas. The soil is very fruitful, and the locality is less than some others infested with troublesome insects; yet it is but scantily peopled, for, besides the two villages and the Hacienda of Maraynioc, already mentioned, it contains only a few scattered chacras. The inhabitants of this, the most favored district of the Montañas, scarcely amount to 200. The villagers employ themselves chiefly in the cultivation of pines, which are sent to Lima. The Indians of Palca and Tapo bring them potatoes, salt, and butcher's meat, for which the villagers exchange their pine-apples. The fruit is conveyed by asses to the coast, where, however, it seldom arrives in good condition. The other productions of the Montaña are maize, oranges, bananas, paltas, Spanish pepper, &c.; but these articles are sold only in the Sierra. Each inhabitant of the village cultivates his own piece of ground, which he can enlarge when he pleases; but these people are too indolent to devote themselves seriously to agriculture. It is only when the governor in Tarma compels them to pay the annual contribution, that they make an effort to augment their earnings; they then seek a market for the products of their cultivation, and sell them for ready money. Vitoc and some of the villages in its neighborhood form altogether only one ecclesiastical community, whose pastor lives in Tarma the whole year round. He goes to Pucara only once in six or eight months, to read a couple of masses, and to solemnize marriages and christenings, but chiefly to collect fees for burials which may have taken place during his absence.

The plantation of Pacchapata is of considerable extent, but produces very little. The system of repartimientos, already described, by which the poor Indian is kept in a state of slavery by advances of clothing, meat, brandy, &c., is practised in this hacienda to a great extent. The laborer who is set down in the plantation-book as a debtor for ten or twelve dollars, has a good chance of remaining during the rest of his life a tributary

slave; for if he tries by prolonged labor to relieve himself from the debt the owner of the plantation causes brandy to be made, and this is too great a temptation to be resisted by an Indian. The butcher's meat given to the laboring Indians in general consists of *Chalonas*, that is, the dried flesh of sheep which have died in the haciendas of the hilly districts. For a meagre, tough, unwholesome chalona the Indian has to add a dollar and a half or two dollars to his debt, while a living sheep in the Sierra would not cost half the price. It is the same with other articles furnished by the haciendas. European importations, such as can be purchased at very low prices in the Sierra, are sold at high profits by the owners of plantations to the poor Indians, who have to repay them by long and severe labor.

At Pacchapata, besides maize, yuccas, and fruits, sugar, coffee, and coca are also cultivated. The sugar-cane grows in abundance, and is of good quality. An excellent kind of coffee is grown here; the bean is slightly globular, and its color is a greenish blue. In former times the viceroy used to send the coffee of Vitoc as a highly-esteemed present to the court of Madrid. The coca is also very fine, and yields three harvests in the year; which, however, is only the case in a few of the Montañas, as, for example, at Pangoa and Huanta. I may here subjoin some notice of this highly interesting plant.

The coca (*Erythroxylon coca*, Lam.) is a shrub about six feet in height, with bright green leaves and white blossoms. The latter are succeeded by small scarlet berries. It is raised from the seed, in garden-beds called *almazigas*. When the young shoots are one and a half or two feet high, they are removed to regularly laid out coca fields (*cocales*), where they are planted at the distance of about three spans from each other. The coca requires humidity; therefore, during the first year or two after it is planted in the fields, maize is sown between the *matas*, or young shoots, to screen them from the too great influence of the sun. When the leaves are ripe, that is to say, when on being bent they crack or break off, the gathering commences. The leaves are stripped from the branches, a task usually performed by women, and it requires great care lest the tender leaves and young twigs should be injured. In some districts, the Indians

are so very careful in gathering the coca, that, instead of stripping off the leaves, they cut them from the stem by making an incision with their nails. The plant thus rendered leafless is soon again overgrown with verdant foliage. After being gathered, the leaves are spread out on coarse woollen cloths and dried in the sun. The color of the leaves when dried is a pale green. The drying is an operation which likewise demands great care and attention, for if the leaves imbibe damp, they become dark colored, and then they sell for a much lower price than when they are green. The dry coca is finely packed in woollen sacks, and covered with sand. These sacks are of various sizes and colors, in different parts of the Montañas. In Huanuco they are grey or black, and when filled weigh from 75 to 80 pounds. In Vitoc they are grey and white, and contain 150 pounds. In Huanta and Anco they are small in size, and black or brown in color, and contain merely one aroba. In the Montañas of Urubamba, Calca, and Paucartambo, the coca leaves are put into small baskets called *cestos*, and covered with sand. Great care is also requisite in the carriage of the coca, for if damp be allowed to penetrate the sack, the leaves become hot, or as the natives express it, *Se calientan*, and are thereby rendered useless.

The Indians masticate the coca. Each individual carries a leathern pouch, called the *huallqui*, or the *chuspa*, and a small flask gourd, called the *ishcupuru*. The pouch contains a supply of coca leaves, and the gourd is filled with pulverised unslaked lime. Usually four times, but never less than three times a day, the Indian suspends his labor, for the purpose of masticating coca. This operation (which is termed *chacchar* or *acullicar*) is performed in the following manner: some of the coca leaves, the stalks having been carefully picked off, are masticated until they form a small ball, or as it is called an *acullico*. A thin slip of damp wood is then thrust into the *ishcupuru*, or gourd, and when drawn out some portion of the powdered lime adheres to it. The *acullico*, or ball of masticated coca leaves, is, whilst still lying in the mouth, punctured with this slip of wood, until the lime mixing with it, gives it a proper relish, and the abundant flow of saliva thus excited is partly expectorated and partly swallowed. When the ball ceases to emit juice, it is thrown away, and a new one is

formed by the mastication of a fresh mouthfull of coca leaves. In Cerro de Pasco, and in places still further south, the Indians use, instead of unslaked lime, a preparation of the pungent ashes of the quinua (*Chenopodium Quinua*, L.). This preparation is called *Llucta* or *Llipta*. In using it a piece is broken off and masticated along with the *acullico*. In some of the Montaña regions the Llucta is made from the ashes of the musa root. The application of the unslaked lime demands some precaution, for if it comes in direct contact with the lips and gums, it causes a very painful burning. During a fatiguing ride across the level heights, where, owing to the cold wind, I experienced a difficulty of respiration, my Arriero recommended me to chew coca, assuring me that I would experience great relief from so doing. He lent me his *huallqui*, but owing to my awkward manner of using it, I cauterized my lips so severely that I did not venture on a second experiment.

The flavor of coca is not unpleasant. It is slightly bitter, aromatic, and similar to the worst kind of green tea. When mixed with the ashes of the musa root it is somewhat piquant, and more pleasant to European palates than it is without that addition. The smell of the fresh dried leaves in a mass is almost overpowering; but this smell entirely goes when they are packed in the sacks. All who masticate coca have a very bad breath, pale lips and gums, greenish and stumpy teeth, and an ugly black mark at the angles of the mouth. An inveterate *coquero*, or coca chewer, is known at the first glance. His unsteady gait, his yellow-colored skin, his dim and sunken eyes encircled by a purple ring, his quivering lips and his general apathy, all bear evidence of the baneful effects of the coca juice when taken in excess. All the mountain Indians are addicted more or less to the practice of masticating coca. Each man consumes, on the average, between an ounce and an ounce and a half per day, and on festival days about double that quantity. The owners of mines and plantations allow their laborers to suspend their work three times a day for the *chacchar*, which usually occupies upwards of a quarter of an hour; and after that they smoke a paper cigar, which they allege crowns the zest of the coca mastication. He who indulges for a time in the use of coca finds it difficult, indeed

almost impossible, to relinquish it. This fact I saw exemplified in the cases of several persons of high respectability in Lima, who are in the habit of retiring daily to a private apartment for the purpose of masticating coca. They could not do this openly, because among the refined class of Peruvians the chacchar is looked upon as a low and vulgar practice, befitting only to the laboring Indians. Yet, Europeans occasionally allow themselves to fall into this habit; and I knew two in Lima, the one an Italian and the other a Biscayan, who were confirmed coqueros in the strictest sense of the word. In Cerro de Pasco there are societies having even Englishmen for their members, which meet on certain evenings for the chacchar. In these places, instead of lime or ashes, sugar is served along with the coca leaves. A member of one of these clubs informed me that on the few first trials the sugar was found very agreeable, but that afterwards the palate required some more pungent ingredient.

The operation of the coca is similar to that of narcotics administered in small doses. Its effects may be compared to those produced by the thorn-apple rather than to those arising from opium. I have already noticed the consequences resulting from drinking the decoction of the datura.* In the inveterate coquero similar symptoms are observable, but in a mitigated degree. I may mention one circumstance attending the use of coca, which appears hitherto to have escaped notice: it is, that after the mastication of a great quantity of coca the eye seems unable to bear light, and there is a marked distension of the pupil. I have also observed this peculiarity of the eye in one who had drunk a strong extract of the infusion of coca leaves. In the effects consequent on the use of opium and coca there is this distinction, that coca, when taken even in the utmost excess, never causes a total alienation of the mental powers or induces sleep; but, like opium, it excites the sensibility of the brain, and the repeated excitement, occasioned by its intemperate use after a series of years, wears out mental vigor and activity.

It is a well known fact, confirmed by long observation and experience, that the Indians who regularly masticate coca require

* See page 189.

but little food, and, nevertheless, go through excessive labor with apparent ease. They, therefore, ascribe the most extraordinary qualities to the coca, and even believe that it might be made entirely a substitute for food. Setting aside all extravagant and visionary notions on the subject, I am clearly of opinion that the moderate use of coca is not merely innoxious, but that it may even be very conducive to health. In support of this conclusion, I may refer to the numerous examples of longevity among Indians who, almost from the age of boyhood, have been in the habit of masticating coca three times a day, and who in the course of their lives have consumed no less than two thousand seven hundred pounds, yet, nevertheless, enjoy perfect health.* The food of the Indians consists almost exclusively of vegetable substances, especially roasted maize and barley converted into flour by crushing, which they eat without the admixture of any other substance. The continued use of this farinaceous food occasions severe obstructions, which the well known aperient qualities of the coca counteract, and many serious diseases are thereby prevented. That the coca is in the highest degree nutritious, is a fact beyond dispute. The incredible fatigues endured by the Peruvian infantry, with very spare diet, but with the regular use of coca; the laborious toil of the Indian miner, kept up, under similar circumstances, throughout a long series of years; certainly afford sufficient ground for attributing to the coca leaves, not a quality of mere temporary stimulus, but a powerful nutritive principle. Of the great power of the Indians in enduring fatigue with no other sustenance than coca, I may here mention an example. A Cholo of Huari, named Hatun Huamang, was employed by me in very laborious digging. During the whole time he was in my service, viz., five days and nights, he never tasted any food, and took only two hours' sleep nightly. But at intervals of two and a half or three hours, he regularly masticated about half an ounce of coca leaves, and he kept an aculli-

* I allude here to individuals (and such cases are by no means singular) who have attained the great age of 130. Supposing these Indians to have *begun to* masticate coca at ten years old, and calculate their daily consumption *as a minimum* at one ounce, the result is the consumption of twenty-*seven hundred* weight, in 120 years.

co continually in his mouth. I was constantly beside him, and therefore I had the opportunity of closely observing him. The work for which I engaged him being finished, he accompanied me on a two days' journey of twenty-three leagues across the level heights. Though on foot, he kept up with the pace of my mule, and halted only for the *chacchar*. On leaving me, he declared that he would willingly engage himself again for the same amount of work, and that he would go through it without food if I would but allow him a sufficient supply of coca. The village priest assured me that this man was sixty-two years of age, and that he had never known him to be ill in his life.

The Indians maintain that coca is the best preventive of that difficulty of respiration felt in the rapid ascents of the Cordillera and the Puna. Of this fact I was fully convinced by my own personal experience. I speak here, not of the mastication of the leaves, but of their decoction taken as a beverage. When I was in the Puna, at the height of 14,000 feet above the level of the sea, I drank, always before going out to hunt, a strong infusion of coca leaves. I could then during the whole day climb the heights and follow the swift-footed wild animals without experiencing any greater difficulty of breathing than I should have felt in similar rapid movement on the coast. Moreover, I did not suffer from the symptoms of cerebral excitement or uneasiness which other travellers have observed. The reason perhaps is, that I only drank this decoction in the cold Puna, where the nervous system is far less susceptible than in the climate of the forests. However, I always felt a sense of great satiety after taking the coca infusion, and I did not feel a desire for my next meal until after the time at which I usually took it.

By the Peruvian Indians the coca plant is regarded as something sacred and mysterious, and it sustained an important part in the religion of the Incas. In all ceremonies, whether religious or warlike, it was introduced, for producing smoke at the great offerings, or as the sacrifice itself. During divine worship the priests chewed coca leaves, and unless they were supplied with them, it was believed that the favor of the gods could not be propitiated. It was also deemed necessary that the supplicator for divine grace should approach the priests with an Acullico in his

mouth. It was believed that any business undertaken without the benediction of coca leaves could not prosper; and to the shrub itself worship was rendered. During an interval of more than 300 years Christianity has not been able to subdue the deep-rooted idolatry; for everywhere we find traces of belief in the mysterious power of this plant. The excavators in the mines of Cerro de Pasco throw masticated coca on hard veins of metal, in the belief that it softens the ore, and renders it more easy to work. The origin of this custom is easily explained, when it is recollected, that in the time of the Incas it was believed that the *Coyas*, or the deities of metals, rendered the mountains impenetrable, if they were not propitiated by the odor of coca. The Indians, even at the present time, put coca leaves into the mouths of dead persons, to secure to them a favorable reception on their entrance into another world, and when a Peruvian Indian on a journey falls in with a mummy, he, with timid reverence, presents to it some coca leaves as his pious offering.

Soon after the conquest of Peru, when the Spaniards treated the Indians and all their customs with contempt, coca became an object of aversion to the whites. The reverence rendered by the natives to the coca plant induced the Spaniards to believe that it possessed some demoniacal influence. The officers of the government and the clergy, therefore, endeavored, by all possible means, to extirpate its use, and this is one cause, hitherto overlooked, of the hatred with which the Indians regarded the Spaniards. In the second council held at Lima, in 1567, coca was described "as a worthless object, fitted for the misuse and superstition of the Indians;" and a royal decree of October 18, 1569, expressly declares that the notions entertained by the natives that coca gives them strength, is an "illusion of the devil" (*una elusion del Demonio*). The Peruvian mine owners were the first to discover the importance of the *chacchar* in assisting the Indians to go through their excessive labor, and they, together with the plantation owners, became the most earnest defenders of coca. The consequence was, that, in defiance of royal and ecclesiastical ordinances, its use increased rather than diminished. One of the warmest advocates of the plant was the Jesuit Don Antonio Julian, who, in a work entitled, "Perla de America," laments

that coca is not introduced into Europe instead of tea and coffee. "It is," he observes, "melancholy to reflect that the poor of Europe cannot obtain this preservative against hunger and thirst; that our working people are not supported by this strengthening plant in their long-continued labors."* In the year 1793, Dr. Don Pedro Nolasco Crespo pointed out in a treatise the important advantages that would be derived from the use of the coca plant, if introduced into the European navies, and he expresses a wish that experiments of its utility in that way could be tried. Though it is not probable that Dr Crespo's wish will ever be realized, yet there is little doubt that the use of coca as a beverage on board ship would be attended with very beneficial results. It would afford a nutritious refreshment to seamen in the exercise of their laborious duties, and would greatly assist in counteracting the unwholesome effects of salt provisions. As a stimulant it would be far less injurious than ardent spirits, for which it might be substituted without fear of any of the evil consequences experienced by the *coqueros*. After a long and attentive observation of the effects of coca, I am fully convinced that its use, in moderation, is no way detrimental to health; and that without it the Peruvian Indian, with his spare diet, would be incapable of going through the labor which he now performs. The coca plant must be considered as a great blessing to Peru. It is an essential means of preserving the nationality of the Indians, and in some measure mitigating the melancholy fate of that once great race which disease and excessive labor now threaten to destroy.

In former times the cultivation of coca in the Montaña de Vitoc was very considerable. Upwards of 4,000 arobas used to be annually forwarded to the market of Tarma. Now only fifty arobas are sent. Vitoc produces no fodder for horses or mules; those animals, therefore, are very lean and feeble in this district, and are usually unfit for work after two years.

* The worthy Padre forgets the high price that would be charged for coca in Europe. In Tarma and Huenuco the aroba (twenty-five pounds) costs at an average six Spanish dollars; add to this the carriage to Lima, the freight to Europe, custom-house duties, &c., and this price would be *nearly doubled.*

Indeed, they suffer so much from the attacks of the blood-sucking bat and the gad-fly (*tabano*), that after being only a few weeks in the Montaña de Vitoc, their strength is exhausted, and they are scarcely able to reach the Puna. Black cattle, on the contrary, thrive excellently; but it is not possible to keep up herds, for the young calves are all devoured by the numerous animals of prey. The llamas, which the Cholos bring from Tapo to Vitoc, are so enfeebled and overcome by the journey, that on the second day after their arrival it is often found necessary to send them to a colder district.

In this Montaña the large animals of prey seldom approach human habitations, though sometimes the ounce pays them a visit, and the Cuguar descends from the Ceja. Other animals of the feline genus are very numerous, and their depredations render it impossible to breed poultry. Even the fabulous animal, called the *carbunculo*, is said to have been seen oftener than once in Vitoc. In almost every place I visited on the coast, in the Sierra, and in the Montañas, extraordinary stories concerning this animal were related; and many persons even assured me they had seen him. The carbunculo is represented to be of the size of a fox, with long black hair, and is only visible at night, when it slinks slowly through the thickets. If followed, he opens a flap or valve in the forehead, from under which an extraordinary, brilliant, and dazzling light issues. The natives believe that this light proceeds from a brilliant precious stone, and that any fool hardy person who may venture to grasp at it rashly is blinded; then the flap is let down, and the animal disappears in the darkness. Such are the stories related by the Indians; and it appears that the belief of the existence of the carbunculo has prevailed in Peru from the earliest times, and certainly before the conquest, so that its introduction cannot be attributed to the Spaniards. It is even prevalent among many of the wild Indian tribes, by whom the early missionaries were told the stories which they in their turn repeated about the animal. As yet nobody has been fortunate enough to capture such an animal, though the Spaniards always showed themselves very desirous to obtain possession of the precious jewel; and the viceroys, in their official instructions to the missionaries, placed the carbunculo in the first order of desiderata. What animal

may have served as a foundation for those fabulous stories, it is certainly difficult to decide; probably a different one in each particular district. On the coast it may have been the *añash* (one of the mephitic animals), which seeks for his food only at night. I have often observed for a moment a singularly brilliant flashing in the eyes of that animal when irritated.

The worst enemies of the delightful Montaña de Vitoc are the wild Indians, who are only separated from the Christian Indians by the two rivers Aynamayo and Tullumayo. They belong to the ferocious race of the *Chunchos*, and in their savage manners they somewhat resemble the Casibos and Campas. They have their chief residence in Chibatizo, nine leagues from Pucara. Only three leagues from Pacchapata, at the confluence of the Chanchamayo and Tullumayo, they have a pretty large village; and Palmapata, which they temporarily took possession of, is situated still nearer. They frequently extend their hunting excursions to the banks of the great rivers, and make inroads upon the territory of Vitoc, cruelly murdering all the Cholos they meet with. Any kind of friendly intercourse with them is impracticable. I took some pains to accomplish that object, but without success. While they were on their hunting expeditions I have left in their huts knives, fish-hooks, ear-rings, and other things. In return for these presents they left for me some of their edible roots, among which were yuccas, but all were poisoned, so that, had we not observed caution, I and my venturous companion, Klee, might have fallen victims to the treachery of these Indians. The Chunchos, when on their expeditions, are almost in a state of nudity. Sometimes they wear a short whitish-brown shirt without sleeves. This garment, when worn by the chiefs, is red. Most of them dye their hair with achote (*Bixa Orellana*, L.), a deep vermilion, and paint the face and breast of the same color. Their weapons consist of a bow of chonta (*Guilielma speciosa*), with which they use two kinds of arrows. One kind are very long, with round points and barbs of chonta; the others are shorter, and have points made of reed, which inflict deep wounds, very difficult to be healed. They also use the great wooden sword, the *macana*. A cross having been put up in the forest, they *fastened to it a few* days afterwards a macana and two arrows, as

symbols of irreconcilable enmity to Christians. Their warlike instrument is a reed, two feet long and four inches broad, through which their howlings resound in horrible discord.

It is a custom with the inhabitants of Vitoc to undertake two expeditions every year against the Chunchos. They are the most laughable enterprises imaginable. All the Cholos of the valley, with the Alcalde at their head, or rather in the midst of them, proceed, armed with sticks, axes, forest knives, and *two* muskets,* to explore the banks of both rivers. The front ranks advance with drums beating, and a number of Indians carry large calabashes filled with guarapo, to which they pay their earnest devotions every half hour. When by accident some of the Chunchos are seen, the Cholos fly with all the rapidity that terror can inspire, and cannot be got together again till they reach their village; then they raise a tremendous shout, and when safe in their dwellings boast proudly of their heroic deeds.

The Chunchos are in possession of a very rich bed of salt, some twelve or fourteen leagues from Vitoc, from whence they permit the neighboring tribes with whom they are at peace, to supply themselves with salt. Hostile tribes, such as the Campas and the Callisecas, sometimes attempt to carry away salt, and then a sanguinary contest ensues. This stratum of salt comes from the top of a hill, called the Cerro de la Sal, and it runs in the direction from south-west to north-east, to the length of nearly three leagues, covering a breadth of about thirty ells. The salt is mixed with red earth. It is probably a continuation of the great salt bed of Maynas, stretching eastward along the left bank of the Perene. It may be presumed that it does not extend as far as the immense Pajonal, as the Campas go for their salt to the Cerro de la Sal.

In former times various attempts were made to convert the

* The whole valley of Vitoc can furnish only two muskets, and these are in as useless a state as possible. As for powder, there is a constant want of it. During my residence in Vitoc I usually gave the Alcalde some of my powder when he went out with his Cholos, or when there was a firing on *festival* days. The want of a suitable number of muskets, and sufficient *powder in* the dangerous vicinity of the Chunchos, is characteristic of the *improvidence* of the inhabitants of Vitoc.

Chunchos to Christianity; and these attempts were partially successful. The first missionary who ventured among them was the intrepid Fray Geronimo Ximenes. In 1635 he penetrated from Huancabamba to the Cerro de la Sal, and there preached the gospel in the language of the people. He built a chapel, and then directed his course south-west to Vitoc, where he founded the village San Buenaventura. Two years after he embarked on the Chanchamayo, with the intention of extending his mission to the Campas tribe, by whom he was killed, together with his companion, Fray Christoval Larios, and twenty-eight other Spaniards. Several missionaries subsequently proceeded to the Cerro de la Sal, and found favor with the natives, so that in 1640 they had no less than seven villages of converted Chunchos, Amagas, and Campas; but only a few years afterwards all the missionaries and soldiers were killed and the chapels were destroyed. The Franciscan monks, inspired by their indefatigable zeal, ventured in 1671, on a new mission to the fatal Cerro de la Sal; and they had the good fortune to found a village in which eight hundred Neophytes were collected. A second and smaller village was founded in the vicinity of the destroyed San Buenaventura, and named Santa Rosa de Quimiri; but the avarice of some Spaniards who fancied there were gold mines in the Cerro de la Sal, induced them to get the missions withdrawn from the superintendence of the priests, and to turn the whole into a political system. Then commenced the oppression of the Indians in those parts. The consequence was a great insurrection in 1674, when all the whites were massacred. Thus were the labors of the missionaries a second time annihilated. Every attempt for the conversion of Indians was for a long time fruitless, and the missionaries who ventured to approach them were shot. After the lapse of about thirty years, during which interval the Chunchos had fallen back to their original savage state, the founder of the Convent of Ocopa, Fray Francisco de San Jose, with four priests and two lay brothers, penetrated into the valley of Vitoc, and entered upon the territory of the Chunchos. At this time (1709) Vitoc was first peopled, and in the course of twenty years six large villages were built. In the year 1739 *these missions*, again flourishing, counted ten Christian villages

and three thousand baptized Indians. Three years afterwards the Indian insurrection, headed by the apostate Juan Santos, destroyed all the missions of Central Peru.

Juan Santos was an Indian born at Huamanga, and he claimed descent from the last of the Incas. This claim was probably well founded, for before the revolt he was called Atahuallpa, which was the name of the Inca put to death by Pizarro. Juan Santos was haughty, high spirited, and clever. In the year 1741 he killed, in a quarrel, a Spaniard of high rank, and to elude the pursuit of justice, he fled to the forests. There he brooded over plans for taking vengeance on the oppressors of his country. He first addressed himself to the tribes of the Campas, and having gained them over, he proceeded to Quisopongo in the Pajonal. From thence, in the year 1742, he made his first attack on the mission of the Cerro de la Sal. The Spaniards had already been warned of the intended rising, but they considered it too unimportant to call for serious measures of repression; and whilst lulling themselves in their imagined security, they were surprised and massacred by the Indians. The insurrection spread with incredible rapidity. Juan Santos himself led all the principal attacks. In one night he took the fortress of Quimiri with sixty-five men, all of whom were massacred in the most cruel manner. The well-defended fort of Paucartambo was next taken by a small number of Chunchos, commanded by Juan Santos. All the Christian churches were destroyed by the insurgents. The sacred images and the priests were tied together, and cast into the rivers; the villages were burned, and the cultivated fields laid waste. The number of Spanish soldiers killed in this insurrection was 245; the number of priests, 26. In the course of a few weeks all the missions of central Peru were completely destroyed, and terror spread even to the mountains. The Spanish government found it necessary to adopt the most vigorous measures, for there was reason to fear that the mountain Indians would revolt. Castles and forts were built on the frontiers of all the Montañas and strongly garrisoned; but the insurrection did not extend further. The ultimate fate of Juan Santos Atahuallpa has never been satisfactorily ascertained. Some assert that he became a powerful ruler, and that as long

as he lived the races of the Chunchos, Pacañes, Chichirrenes, Campas, and Simirinches, were united. On an old manuscript in the monastery of Ocopa I found a marginal note, in which it was said, "As to the monster, the apostate Juan Santos Atahuallpa, after his diabolical destruction of our missions, the wrath of God was directed against him in the most fearful manner. He died the death of Herod, for his living body was devoured by worms."

Shortly after the tragical downfall of these missions, two priests, Fra Francisco Otasua and Fray Salvador Pando, visited the ruins of Quimiri, and endeavored to conciliate the rebels; but in vain. After three months, during which they suffered dreadful ill treatment from the Chunchos, they returned to the monastery of Ocopa.

These missionaries were all monks of the order of San Francisco. Their active zeal and heroic submission to any sacrifice in furtherance of the cause in which they were embarked must excite at once astonishment and admiration. Undaunted by incredible privations and laborious exertions in the pathless forests, without food or shelter; undismayed by the continual apprehension of a violent and cruel death, they courageously obeyed the inward impulse which inspired them to preach the gospel to the wild Indians. When intelligence was received of the violent death of one of the brotherhood, others immediately offered to supply the place of the victim, and the superiors of the order had much difficulty in restraining the zealous monks. In the central and northern missions of Peru, 129 Franciscan monks were murdered by the wild Indians. Those who compose that number are recorded by name, but many others disappeared without leaving a trace of what had become of them, and of course they are not included in the list. The number of lay brethren who perished is much greater. It is indeed melancholy to reflect how little advantage has been obtained by the sacrifice of so many valuable lives. The missions have nearly all disappeared, and the Indians have now retrograded into the savage state in which they were before the conquest of Peru.

The Franciscan monks were mild and patient teachers. They proceeded on the principle of leaving the Christian re-

ligion to act for itself, and they scorned to promote it by any kind of compulsion. The Dominicans, on the other hand, who came to Peru with the conquerors, preached Christianity with fire and sword. The Jesuits, who headed the missions of Southern Peru, adopted the one way or the other, as they found most advantageous to the object they had in view. By this means they secured the attachment of the neophytes, and retained most of their conversions. Many of the Jesuit missionaries were highly intelligent and well-informed men. We are indebted to them for important geographical and statistical information, and in particular for some philological works of great value, viz., a grammar and dictionary of the language of every tribe they converted. The Dominican monks, who were mere ignorant fanatics, sacrificed to their blind zeal for conversion all the monuments of the early civilization of the Peruvians, and restrained, rather than promoted, the intellectual development of the people. The Franciscans, animated by pious inspiration, earnestly preached the doctrines of Christ to the wild inhabitants of the distant forests; but they communicated little information to the rest of world. A few imperfect maps, and some scanty notices on the manners and customs of the Indians, are the whole amount of their laical labors.

In the year 1779 an attempt was again made to penetrate to the Cerro de la Sal, and a road was opened leading from Palca to Chanchamayo, where a fort was built; but at the expiration of five years the government destroyed it, as continued irruptions of the Chunchos could not be checked. In 1784, the governor of Tarma, Don Juan Maria de Galvas, supported by the Superior of Ocopa, Fray Manuel Sobreviela, visited the valley of Vitoc, which had been abandoned since the Indian insurrection. The new village of San Teodoro de Pucara was founded, and the destroyed fort, Santa Ana de Colla, was rebuilt. The Montaña was soon peopled, and in a short time it contained upwards of forty haciendas and large chacras. The village of Sorriano, scarcely two leagues from Colla, was then inhabited by Chunchos, who showed a willingness to maintain friendly intercourse with the occupants of Vitoc, from whom they took meat, tools, *and other things*, which they repaid by agricultural labor. Unfortunately, the plantation owners soon began to take an undue

advantage of this friendly intercourse, and to charge exorbitant prices for the articles required by the Indians. For a pin or a needle they demanded two days' work, for a fishing-hook four, and for a wretched knife, eight, ten, or more. A rupture was the consequence. The Chunchos burned their own village, and returned again to Chanchamayo. Still, however, they continued on a sort of amicable footing with the Cholos, until one of the latter wantonly shot a Chuncho at a festival. The tribe then mustered in thousands to avenge the murder. They destroyed the Christian villages, and massacred all the inhabitants who were not able to fly. Thus was Vitoc once more depopulated: Cardenas, the military governor of Tarma, made a fresh endeavor to restore the cultivation of this fine valley. He made the road again passable, laid out the large plantation Chuntabamba, built and garrisoned the Colla fort. The site of the former Chuncho village, Sorriano, was converted into a *cocal* (or coca field), and the Montaña began once more to assume a flourishing aspect. Still, however, the Chunchos continued to harass their neighbors, particularly during the time of the coca harvest, which could not be gathered without military protection. During one of the harvests a laborer was shot by the wild Indians, which so terrified the Cholos, that they all fled to Sorriano. Soon after, Cardenas died, and the coco plantation being neglected, became a waste. A few years afterwards the hacienda of Pacchapata was laid out. During the war of independence the Spaniards destroyed Fort Colla, and the inhabitants of Vitoc were left without any means of defence against their savage enemies. The last attempt to reduce the Chunchos to subjection and order was made by a military expedition under the command of General Don Francisco de Paula de Otero, but owing to ill-arranged plans it totally failed. No more than twenty-five years have elapsed since the valley of Vitoc, with its rich plantations, was in the most flourishing prosperity. Now only faint traces of its past cultivation are discernible.

The history of the Montaña of Vitoc is the history of all the Montañas of Peru. In all, we perceive the alternate rise and decline of cultivation and civilization, caused by the efforts of the missionaries, and the incursions of the wild Indians. Through-

out all these districts the present condition exhibits a marked inferiority to the past, a circumstance which may be accounted for by the long-continued civil war, during the contest for independence. Nevertheless, the internal tranquillity of the country, and the increasing population, suggest favorable prognostics for the future.

CHAPTER XVI.

Oppressions exercised by the Spaniards upon the Peruvian Indians—The Repartimiento and the Mita—Indian Insurrections—Tupac Amaru—His Capture and Execution—War of Independence—Character of the Peruvian Indians—Music—Dress — Superstitions — Longevity—Diminished Population of Peru—Languages spoken by the Aboriginal Inhabitants—Specimen of Quichua Poetry—The Yaravies—The Quipu—Water Conduits—Ancient Buildings—Fortresses—Idols—Domestic Utensils—Ancient Peruvian Graves—Mode of Burying the Dead—Mummies.

A GLANCE at the history of Peru serves to show that prior to the Spanish conquest the Indians were the subjects of a dynasty, to which they rendered willing obedience. We find, indeed, an uninterrupted series of revolutions and wars, arising out of the continued extension of the empire, to which nations differing one from another in language, religion, and manners, were gradually annexed. For some time after their subjugation these nations struggled to recover their independence, but the wise and mild government of the Incas gradually restored peace, and established unity. In course of time, the magnitude of the empire led to its downfall. Huayna Inca-Capac divided his dominions between his two sons. To the elder, Huascar, he gave the southern portion of the empire, and to the younger, Atahuallpa, he gave the northern division. Between the two brothers there arose disputes, which led to a sanguinary war; and in that fatal interval, Pizarro, with his invading forces, landed in Peru. With a degree of speed, which internal union among the people would have rendered impossible, the Spaniards made themselves masters of the country, massacred alike sovereigns and subjects, destroyed the sanctuaries, and established a new religion and new laws. The barbarous cruelties by which that religion and those laws were upheld are too well known to require repetition here. Of the many oppressive measures to which the Spaniards

enforced submission from the conquered people, I will briefly notice two: the *Repartimiento* and the *Mita*. The Repartimiento was the distribution, among the natives, of articles of European production. These distributions were under the superintendence of the provincial authorities, the corregidores, and the sub-delegados. The law was doubtless intended, in its origin, for the advantage and convenience of the native Indians, by supplying them with necessaries at a reasonable price. But, subsequently, the Repartimiento became a source of oppression and fraud, in the hands of the provincial authorities. All the corregidores and sub-delegados became traders. They purchased consignments of manufactured goods from Europe, at a cheap rate, and sold them to the Indians at exorbitant prices. To add to the grievance, the articles thus forced upon the natives were, in many instances, not necessaries, but objects of luxury utterly useless to them. Even more oppressive and cruel than the Repartimiento, was the Mita, which consisted of the forced labor of the Indians in the mines and plantations. Every Spaniard who wished to work a mine, obtained from the corregidor a certain number of Indians, to each of whom he gave daily four reals as wages, with the agreement of paying to the government a yearly tax of eight dollars. The condition of the Indians who were distributed to the plantation owners was even worse than that of the mine laborers; they received only two reals per day, and were required to work in the fields from three in the morning until after sunset. The Indians employed in this compulsory labor, whether in the mines or the plantations, were called *Mitas*. But there was another sort of forced labor, for which no wages were paid. It was indeed less toilsome than working in the mines and plantations, yet the Indians employed in it were frequently subject to much ill-treatment. I allude to domestic service in the houses of the corregidores, sub-delegados, and priests. The Indians thus employed were called *Pongos*, and they were required to continue in their places for the space of a year, after which they were discharged. A corregidor frequently had half a dozen of these pongos, whom he provided with miserable food *and wretched* clothing.*

* *Even to this* day the custom of forced domestic service is kept up

In the mines and plantations countless numbers of Indians were annually swept away by the excessive labor consequent on the mita. Some writers estimate at nine millions the number of Indians sacrificed in the mines in the course of three centuries. This estimate is certainly too high; but three millions more may be added for the number of victims of the mita in the plantations.

That the government in Spain should have tolerated this barbarous system, so obviously calculated to bring ruin on the nation, may naturally be matter of surprise. But a glance at the Indian laws (*Leyes de Indias*) suffices to show the distinction between the intentions of the Spanish government and the corrupt legislation of the country. The laws are, with some few exceptions, conceived in a mild spirit, and show that their framers had in view the well-being of the colonies. The execution of these laws was consigned to the superintendence of what was termed the Indian council (*Consejo de Indias*). This council consisted of a certain number of men who resided in Spain, and who either were only in part acquainted with the real state of things in South America, or were bribed by Indian gold to wink at the abuses committed there. From this council were chosen the viceroys and high authorities of the colonies, who, whilst in the exercise of their official functions, amassed enormous wealth by unjust exactions from the Indians. One of the latest viceroys of Peru was a man who arrived in Lima in a state of utter poverty, and who, in the short space of three years, amassed the immense sum of five millions of dollars.

Could it be matter of surprise if at length the Indians rose against their oppressors, and made an effort to shake off the heavy yoke of their tyrants? For two hundred years they had borne it silently, without a single attempt to emancipate themselves. Juan Santos Atahuallpa was the first who stirred up revolt against the Spaniards. The insurrection which he had headed, though deemed too insignificant to fix the attention of the short-sighted government of Lima, nevertheless, convinced the Indians that

in some parts of the Sierra, where the priest is allowed the services of a female cook, who is called a *Mita*, and a man servant, for whom the name of *Pongo* is reserved. These servants are kept for the space of a week.

they were strong enough to make a stand against their oppressors. Several partial risings in Southern Peru were speedily put down; a leader was wanted to organize the disconnected plans and movements of the insurgents. This want was at length supplied in the person of the ill-fated Tupac Amaru, cacique of Tungasuca, a descendant of the last Inca.

The event which caused Tupac Amaru to attempt a movement against the Spaniards occurred in 1780. In that year, the corregidor of Tinta, Don Antonio Ariaga, made repartimientos to the amount of 340,000 dollars, and with the most cruel rigor enforced payment of the useless articles distributed. The cacique of Tungasuca assembled the irritated Indians, who seized the corregidor and hanged him. This was the signal for a general rising in all the neighboring districts. The forces of Tupac Amaru augmented daily. He was invested with the title of Inca, and treated with the honors due to sovereignty. For several months an active war was maintained in the Puna, where several towns and villages were taken by the insurgents. Tupac Amaru had made himself master of the village of Chucuito, and was preparing to advance upon Cuzco, when, about the end of April, 1781, he, and all his family, were made prisoners by the Spaniards. He was tried and condemned to death, together with his wife, two sons, his brother-in-law, and several other individuals of note among the Indians.

But the execution of Tupac Amaru, which was marked by circumstances of monstrous barbarity, far from stemming the tide of revolution, served only to stimulate the vengeance of the insurgents. They once more mustered their warlike bands, under the command of Casimiro Tupac Amaru, the brother of the late cacique, his son Andres, and an intrepid Indian chief, named Nicacatari. The latter, assisted by Andres, burned several villages of Upper Peru, and murdered all the whites. They next advanced upon the strongly fortified town of Sorrata, whither the Spaniards of the surrounding districts had fled for protection. The town was taken by the insurgents, and the inhabitants, 22,000 in number, inhumanly put to death, with the exception of eighty-seven priests and monks. The Indians then advanced westwards, defeating several Spanish corps, and spreading terror

and dismay through the country. But, that which neither the arms nor the executions of the Spaniards could accomplish, was effected by their gold. A treacherous Indian, bribed by the promise of a large reward, conducted a division of Spanish soldiers to the spot where the chiefs were accustomed to meet, unattended by any guard, to hold their council. They were surprised, captured, and condemned to death. Once more deprived of leaders, the Indians disbanded and withdrew, some to their homes, and others into the forests. Numberless victims paid the debt of retribution to the Spanish government, which now adopted every measure that could tend to annihilate the nationality of the native Indians. Their dances, their music, their dress—all that could revive the remembrance of their progenitors, was condemned to rigorous prohibition; they were even forbidden the use of their mother tongue, the Quichua language. The only beneficial result of these wars, in which upwards of a hundred thousand lives were sacrificed, was the abolition of the Repartimientos, which had been the cause of the insurrections.

Peace was now, at least to appearance, restored; and if, occasionally, symptoms of disturbance arose, they were immediately repressed. This state of things continued until the Creoles themselves gave the signal of revolt, and the War of Independence broke out in all the Spanish colonies of South America. In this enterprise the Indians readily took part. But it is a great mistake to suppose that the Indian natives made common cause with the Creoles against the Spaniards for the purpose of bringing about the present form of government. They wished to emancipate themselves in order to establish their own dynasty and a government modelled after that of their forefathers. They wanted not a republic, but a monarchy, and a sovereign chosen from the sacred race of the Incas. Having no clear comprehension of the real object of the War of Independence, the Indians, when they saw whites fighting against whites, directed their hostility against all *Pucacuncas* (pale faces) without distinction, killing loyalists or patriots, just as they happened to fall in their way. This hatred was so bitterly manifested, that in some provinces all the whites and mestizos were obliged to fly, even though they were the most decided enemies of the Spanish loyal-

ists. In Jauja the Indians vowed not to leave even a white dog or a white fowl alive, and they even scraped the whitewash from the walls of the houses.

The provisional government ordered levies of troops to be made in the provinces which had fallen into the hands of the patriots; and then, for the first time, Indians were enrolled in the army as regular troops. But it was only in a very few districts that they voluntarily took part in the conflict for independence: they performed the forced service of conscripts, and whenever an opportunity enabled them to retire from it, they did so. The Spanish dominion being overthrown, the war terminated, and a republican constitution was established. The Indians then clearly perceived that they had been made the tools of the leaders of the revolution. Upon the whole, their condition was but little improved; for if they were relieved from some oppressive laws, other hardships weighed heavily on them, and they found that they still were slaves in the land of their fathers. The creoles, like the Spaniards, will draw the string of despotism till it snaps. Then will arise another Indian insurrection like that headed by Tupac Amaru, but with a more successful result. After a fearful struggle, they may reconquer their fatherland, and re-establish their ancient constitution; and can it be matter of surprise if they wreak cruel vengeance on the enemies of their race?

Since the War of Independence, the Indians have made immense progress. During the civil war, which was kept up uninterruptedly for the space of twenty years, they were taught military manœuvres and the use of fire-arms. After every lost battle the retreating Indians carried with them in their flight their muskets, which they still keep carefully concealed. They are also acquainted with the manufacture of gunpowder, of which in all their festivals they use great quantities for squibs and rockets. The materials for the preparation of gunpowder are found in abundance in the valleys of the Sierra.

In the year 1841, when I was passing through a miserable village on the confines of one of the Montañas of Central Peru, I took up my abode for some days in the hut of an Indian, and *whilst there* I accidentally saw eighteen muskets which were *deposited in* a place of concealment. I, quite unsuspectingly,

inquired of the Indian, why he thought it requisite to keep so many weapons of defence? He replied, with a sinister frown, that the time would come when he should find them useful. I could easily perceive that my accidental discovery was by no means agreeable to him; and from the very marked change which I observed in his manner, I deemed it prudent to withdraw from the village and its vicinity. Whilst my horse was being saddled, I noticed my host and some of his confidential friends engaged in very earnest conversation, and I could easily perceive that I was the subject of it. On my departure the Indian asked me, with apparent friendliness of manner, which way I was going? When I was beyond the sphere of his observation, I deemed it prudent to proceed quite in an opposite direction from the route which I told him I intended to take.

The character of the Peruvian Indian is essentially gloomy. It was not always so, if we may give credit to the animated pictures drawn by early travellers in Peru; but three hundred years of oppression and suffering have impressed their melancholy stamp on the feelings and manners of the people. This gloominess is strikingly manifested in their songs, their dances, their dress, and their whole domestic economy. The favorite musical instruments of the Indians are those called the *Pututo* and the *Jaina*. The former is a large conch, on which they perform mournful music, as the accompaniment of their funeral dances. In early times this conch was employed in the solemnities of royal interments; now its use is exclusively reserved for the anniversaries held in commemoration of certain events connected with the fallen Inca dynasty. The *Jaina* appears to be of more modern origin; it is a rude kind of clarionet, made from a reed. Its tone is indescribably melancholy, and it produces an extraordinary impression on the natives. If a group of Indians are rioting and drinking, or engaged in furious conflict with each other, and the sound of the *Jaina* is suddenly heard, the tumult ceases, as if by a stroke of magic. A dead stillness prevails, and all listen devoutly to the magic tones of the simple reed; tones which frequently draw tears from the eyes of the apathetic Indian.

Their garments are all of dark and sombre hues. Dark blue is a favorite color, and appears to be generally adopted for mourn-

ing; for whenever the Indians follow a corpse to the grave, they always wear dark blue ponchos. The dress of the men usually consists of short trowsers, of coarse brown cloth, fastened round the waist by a girdle, and a woollen or cotton shirt. They seldom wear a jacket, the ponchos of Alpaca wool being always the outer garment. On their feet they wear sandals of untanned leather, which merely cover the toes, and are fastened round the ancle.

The dress of the women consists of a loose under garment, without sleeves, and made of coarse blue woollen cloth. It is confined round the waist by a broad girdle, called the *huccau*. Over the arms are drawn black sleeves, reaching from the wrist to about the middle of the upper arm. A sort of robe or tunic, called the *anacu*, descends from the shoulders to the knees. It is fastened, not in front, but on one side. This garment is made of a thin sort of woollen stuff. It is always black, being worn in token of mourning for the Incas. On the occasion of certain festivals, the Indian women wear a particolored dress, called a *faldillin*. This garment frequently exhibits the most glaring contrasts of color, one half being bright red, and the other yellow, in addition to which it is sometimes adorned with flowers of brilliant hues, and tasteless, gold embroidery. A *mantilla*, consisting of a narrow piece of woollen cloth, passed over the shoulders, and fastened under the chin, either with a long silver pin, or a cactus-thorn, completes the costume. In this mantilla, or in a poncho, mothers are accustomed to wrap their infants, and fastening them to their backs, they carry them about in this manner for a whole day, whilst engaged in their work.

In their domestic relations, the Indians are unsocial and gloomy. Husband, wife, and children live together with but little appearance of affection. The children seem to approach their parents timidly, and whole days sometimes elapse without the interchange of a word of kindness between them. When the Indian is not engaged in out-door work, he sits gloomily in his hut, chewing coca, and brooding silently over his own thoughts. To his friend he is more communicative than to his wife. With the former, he will often discourse, apparently on some secret topic, for the space of half a night; nevertheless, he cannot be accused of treating his wife with any degree of cruelty, or of regarding

her merely in the light of his slave, as is customary among many uncivilized races of people.

Besides the official authorities, to which the Government exacts obedience, the Peruvian Indian acknowledges other authorities, whose functions and power are similar to those which existed under the Inca dynasty. In like manner, though they have embraced the Christian faith, yet they obstinately adhere to certain religious ceremonies, which have been transmitted to them by their idolatrous progenitors. Thus their religion is a singular combination of Christian principles and heathenish forms. Hitherto the most patient and intelligent of their religious instructors have failed to outroot this attachment to old forms. The Christian religion has been spread among the Indians by force; and for centuries past, they have regarded the priests only in the light of tyrants, who make religion a cloak for the most scandalous pecuniary extortions, and whose conduct is in direct opposition to the doctrines they profess. If they render to them unconditional obedience, accompanied by a sort of timid reverence, it is to be attributed less to the operation of the Christian principle, than to a lingering attachment to the theocratic government of the Incas, which has impressed the Peruvians with a sacred awe of religion.

The superstition with which the Indians are so deeply imbued is adverse to the inculcation of pure religious faith; it is the more difficult to be eradicated, inasmuch as it has its origin in early tradition, and has in later times been singularly blended with the Catholic form of worship. Of this superstition I may here adduce some examples. As soon as a dying person draws his last breath, the relatives, or persons in attendance, put coca leaves into the mouth of the corpse, and light a wax candle. They then collect together the household goods and clothes of the deceased and wash them in the nearest river. They put on the dead clothes, which are made after the pattern of a monk's habit, and they hang round the neck of the corpse a little bag, containing seeds of coca, maize, barley, quinua, &c., for his plantations in the next world. In the evening ashes are strewed on the floor of the room, and the door is securely fastened. Next morning the ashes are carefully examined to ascertain whether they show any impression of footsteps; and imagination readily traces

marks, which are alleged to have been produced by the feet of birds, dogs, cats, oxen, or llamas. The destiny of the dead person is construed by the foot-marks which are supposed to be discernible. The worst marks are those of hens' claws, which are believed to denote that the soul of the deceased is doomed to irrevocable perdition. The marks of the hoofs of llamas are considered favorable, and are believed to indicate that the soul, after a short purgatory, will be transferred to the joys of paradise. The funeral is conducted according to Christian forms, and under the superintendence of a priest. But as soon as the priest takes his departure food is put into the grave along with the dead body, which is interred without a coffin. I have sometimes seen one of the nearest relatives leap into the grave and strike the body with his foot, but the meaning of this strange proceeding I never could clearly understand. Some curious ceremonies are observed on All Souls' Day. In every house in which a member of the family has died in the course of the year, a table is laid out with brandy, coca, tobacco, together with some of the favorite dishes of the deceased person, and the chamber is kept closed the whole day. The family firmly believe that the spirit of their departed relative on that day revisits his earthly abode, and partakes of the repast that is spread out on the table. A widow usually wears mourning for the space of twelve months. In some provinces, on the anniversary of her husband's death, the widow puts on a bridal dress, and over it her ordinary garments. All her relatives visit her in her dwelling, where, to the accompaniment of doleful music, she takes the lead in a funeral dance. As the hour approaches at which the husband died in the previous year, the dancing and the music become more and more mournful; but whenever the hour is past one of the female friends approaches the widow and removes her black mantilla. The other females then strip off the rest of her mourning garments, and adorn her head with flowers. At length she appears in a complete bridal dress. The musicians strike up a lively strain, to which the whole party dance, and the evening is passed in drinking and merry-making.

Among the Peruvian Indians there are marked varieties of *form and* complexion. These differences are most distinctly

observable between the inhabitants of the coast and those of the mountain and forest regions. In general, the Peruvian Indian is of middle height, rather slender, and not very robust. The coast Indians are more plump than the inhabitants of other districts, because they lead a less laborious life, and are less exposed to privations. It is scarcely possible to trace any particular national physiognomy among the Indians. In each province a distinct character is observable in the features of the inhabitants. The varieties of feature are less distinctly marked than the differences of complexion. The peculiar tints of the skin are decidedly defined, and indicate respectively the inhabitants of the three principal regions. The colder the climate, the fairer is the skin. For example, the color of the Puna Indian is a dark red-brown; that of the native of the Sierra is considerably lighter; it is a rusty red, but still darker than that of the coast Indians; and the natives of the forests are yellow, nearly approaching to maize color. These differences are singularly striking, when one has an opportunity of seeing the inhabitants of the different regions in juxtaposition. It is curious that the Cholos of the Puna, when they settle in the forests, become only a very little clearer; and that, on the other hand, the yellow Indians of the Montaña, after being several years in the Puna, still retain their characteristic tint. The women are, on the whole, extremely ugly, with round, inexpressive faces. Their hands and feet are very small.

The Indians are, on the average, remarkable for longevity, though they frequently shorten their lives by the intemperate use of strong drinks. Instances are not rare of Indians living to be 120 or 130 years of age, and retaining full possession of their bodily and mental powers. Stevenson mentions that on examining the church registers of Barranca, he found that within an interval of seven years, eleven Indians had been interred, whose united ages amounted to 1207, being an average of 109 years to each. In the year 1839 there was living in the valley of Jauja an Indian who, according to the baptismal register shown to me by the priest, was born in the year 1697. He himself declared that he had not for the space of ninety years tasted a drop of water, having drunk nothing but chicha. Since he was

eleven years of age, he alleged that he had masticated coca, at least three times every day, and that he had eaten animal food only on Sundays; on all the other days of the week he had lived on maize, quinua, and barley. The Indians retain their teeth and hair in extreme old age; and it is remarkable that their hair never becomes white, and very seldom even grey. Those individuals whose advanced ages have been mentioned above, had all fine black hair.

Since the Spanish conquest, the population of Peru has diminished in an almost incredible degree. When we read the accounts given by the old historiographers of the vast armies which the Incas had at their command; when we behold the ruins of the gigantic buildings, and of the numerous towns and villages scattered over Peru, it is difficult to conceive how the land could have been so depopulated in the lapse of three centuries. At the time of the conquest it was easy, in a short space of time, to raise an army of 300,000 men, and, moreover, to form an important reserved force; whilst now, the Government, even with the utmost efforts, can scarcely assemble 10,000 or 12,000 men. According to the census drawn up in 1836, Peru did not contain more than 1,400,000 men, being not quite so many as were contained at an earlier period in the department of Cuzco alone. Unfortunately there is no possibility of obtaining anything approaching to accurate estimates of the population of early periods; and even if such documents existed, it would be difficult to deduce from them a comparison between Peru as it now is, and Peru at the period when Bolivia, a part of Buenos Ayres, and Columbia, belonged to the mighty empire. I will here quote only one example of the immense diminution of the population. Father Melendez mentions that shortly after the conquest, the parish of Ancallama, in the province of Chancay, contained 30,000 Indians fit for service (that is to say, between the ages of eighteen and fifty); now, the same parish contains at most 140 individuals, of whom one-third are Mestizos. The whole coast of Peru, now almost totally depopulated, was once so thickly inhabited, that to subdue King Chimu, in North Peru *alone*, an army of 80,000 men was requisite. The causes of *the diminished* Indian population of Peru have been so frequently

and fully detailed by previous writers, that I need not here do more than briefly advert to them. They are found in the extensive and reckless massacres committed by the Spaniards during the struggle of the conquest; in the suicides and voluntary deaths resorted to by the natives to escape from the power of their oppressors; in the mita, the small-pox, the scarlet fever, and the introduction of brandy. The mita alone, especially the labor in the mines, has swept away four times as many Indians as all the other causes combined. Since the abolition of the mita, the Indian population has been on the increase, though there has not yet been time for any marked result to become manifest; the more especially, considering the numbers of lives sacrificed during the frequent civil wars. Nevertheless, it is easy to foresee that a decided augmentation of the Indian inhabitants of the western parts of South America will, ere long, be apparent.

Among the aboriginal inhabitants of Peru a variety of languages are in use. In the southern parts of the country, particularly about Cuzco, the *Quichua* is spoken. It was the dialect of the court, and that which was most generally diffused, and the Spaniards therefore called it *la lengua general.* In the highlands of Central Peru, the Chinchaysuyo language prevailed. The Indians of the coast, who belonged to the race of the Chunchos, spoke the *Yunga.* The *Kauqui* was the language of that part of Central Peru which corresponds with the present province of Yauyos. The inhabitants of the north-eastern parts of Peru, as far as the Huallaga, spoke the *Lama* language,* and the natives of the highland regions of Quito spoke the *Quiteña.*† These different languages, which, with the exception of the Lama, proceed all from one source, differ so considerably, that the inhabitants of the several districts were reciprocally incapable of

* Adelung, in his "Review of all Languages," considers the Calchaqui (still spoken in Tucuman) to be a dialect of the Quichua. It is, however, a dialect of the Aymara. Adelung makes another mistake when he observes, that the Lama language is spoken in the neighborhood of Truxillo.

† Of the *Quichua, Quiteña,* and *Lama* languages several grammars and dictionaries exist. Of the *Kauqui* only single words have been preserved. There is a very imperfect dictionary of the *Chinchaysuyo* by Figueredo. Of the *Yunga* there is a grammar with a *Confesionario* and Prayers by *Fernando de Carrera*—a very scarce work.

understanding each other, and the Incas found it necessary to introduce the Quichua among all the nations they subdued. The other dialects were thereby much corrupted, and at the time of the Spanish invasion, they were seldom correctly spoken. This corruption was naturally increased more and more after the arrival of the Spaniards, by the introduction of a new language. Only for a few of the new articles brought by the Spaniards to Peru did the Indians form new names, taking the roots of the words from their own language: for most things they adopted the Spanish names. By this means, but still more by the future intercourse of the people with the invaders, the purity of the natural language rapidly disappeared in proportion to the influence which the Spaniards obtained by their increase in numbers and moral superiority. At present the Quichua is a compound of all the dialects and the Spanish; it is spoken in the greatest purity in the southern provinces, though even there it is much intermixed with Aymara words. In Central Peru the Chinchaysuyo prevails, and on the coast the Spanish and the Yunga. The present Indians and people of mixed blood, who of necessity must speak the ever-changing Quichua, and also the Spanish, speak both in so corrupt a manner, that it is frequently almost impossible to understand them.

The family of the Incas had a secret language of their own, which was not learned by subjects. This language is now almost totally lost, not more than two dozen words of it being preserved. In early times, the Quichua language was much cultivated. It was used officially in public speaking, and professors were sent by the Inca family into the provinces to teach it correctly. For poetry, the Quichua language was not very well adapted, owing to the difficult conjugation of the verbs, and the awkward blending of pronouns with substantives. Nevertheless, the poetic art was zealously cultivated under the Incas. They paid certain poets (called the *Haravicus*), for writing festival dramas in verse, and also for composing love-songs and heroic poems. Few of these heroic poems have been preserved, a circumstance the more to be regretted, as many of them would doubtless have been important historical documents; but for that very reason, the Spaniards spared no pains to obliterate every trace of them. Some of the

love-songs have, however, been preserved. In Quichua poetry, the lines are short, and seldom thoroughly rhythmical. Rhymes were only exceptional, and were never sought for. The poetry was, therefore, merely a sort of broken prose.

A specimen of one of the best of the Quichua love-songs is given by *Garcilaso de la Vega*, in his "Commentaries and Poems." It is copied from papers left by a monk, named Blas Valera; and some lines of it are here subjoined. The subject is an old Peruvian tradition:—A maiden of royal blood (*ñusta*) is appointed by the Creator of the world (*Pacchacamac*) in heaven, to pour water and snow on the earth out of a pitcher; her brother breaks the pitcher, whereupon thunder and lightning arise.

Cumac ñusta	Beautiful Princess,
Turallayquim	Thy Pitcher
Puynuyquita	Thy brother hath broken
Paquicayan	Here in Pieces;
Hina mantara	For that blow
Cunuñunun	It thunders; and lightning
Yllapantac	Flashes all around.

There were, however, instances of versification which may properly be called poetry. Of this the *Yaravies*, or elegies, afford some fair examples. These poems have for their subjects unfortunate love, or sorrow for the dead. They were recited or sung by one or more voices, with an accompaniment of melancholy music, and made a great impression on the hearers. A foreigner, who for the first time hears one of these *Yaravies* sung, even though he may not understand the Quichua words, is nevertheless deeply moved by the melody. The strain is sad and sweet. No other music is at once so dismal and so tender. What the *donina* is as an instrument, the *yaravie* is in singing; both convey the expression of a deeply troubled heart. The *yaravie* has been imitated by the Spaniards in their own language, and some of the imitations are very beautiful; but they have not been able to reach the deep melancholy of the Quichua elegy. The modern poetry of the Indians is inferior to the old; the words are a mixture *of Quichua* and Spanish, and are scarcely intelligible. The

Spanish words have often Quichua terminations affixed to them; on the other hand, sometimes the Quichua words are inflected after the Spanish manner, making altogether a barbarous compound.

The ancient Peruvians had no manuscript characters for single sounds; but they had a method by which they composed words and incorporated ideas. This method consisted in the dexterous intertwining of knots on strings, so as to render them auxiliaries to the memory. The instrument consisting of these strings and knots was called the QUIPU. It was composed of one thick head or top string, to which, at certain distances, thinner ones were fastened. The top string was much thicker than these pendent strings, and consisted of two doubly twisted threads, over which two single threads were wound. The branches, if I may apply the term to these pendent strings, were fastened to the top ones by a simple loop; the knots were made in the pendent strings, and were either single or manifold. The lengths of the strings used in making the quipu were various. The transverse or top string often measures several yards, and sometimes only a foot long; the branches are seldom more than two feet long, and in general they are much shorter.

The strings were often of different colors; each having its own particular signification. The color for soldiers was red; for gold, yellow; for silver, white; for corn, green, &c. This writing by knots was especially employed for numerical and statistical tables; each single knot representing ten; each double knot stood for one hundred; each triple knot for one thousand, &c.; two single knots standing together made twenty; and two double knots, two hundred.

This method of calculation is still practised by the shepherds of the Puna. They explained it to me, and I could, with very little trouble, construe their quipus. On the first branch or string they usually placed the numbers of the bulls; on the second, that of the cows; the latter being classed into those which were milked, and those which were not milked; on the next string were numbered the calves, according to their ages and sizes. Then came the sheep, in several subdivisions. Next followed the number of foxes killed, the quantity of salt consumed, and,

finally, the cattle that had been slaughtered. Other quipus showed the produce of the herds in milk, cheese, wool, &c. Each list was distinguished by a particular color, or by some peculiarity in the twisting of the string.

In this manner the ancient Peruvians kept the accounts of their army. On one string were numbered the soldiers armed with slings; on another, the spearmen; on a third, those who carried clubs, &c. In the same manner the military reports were prepared. In every town some expert men were appointed to tie the knots of the quipu, and to explain them. These men were called *quipucamayocuna* (literally, officers of the knots). Imperfect as was this method, yet in the flourishing period of the Inca government the appointed officers had acquired great dexterity in unriddling the meaning of the knots. It, however, seldom happened that they had to read a quipu without some verbal commentary. Something was always required to be added if the quipu came from a distant province, to explain whether it related to the numbering of the population, to tributes, or to war, &c. Through long-continued practice, the officers who had charge of the quipus became so perfect in their duties, that they could with facility communicate the laws and ordinances, and all the most important events of the kingdom, by their knots.

All attempts made in modern times to decipher Peruvian quipus have been unsatisfactory in their results. The principal obstacle to deciphering those found in graves, consists in the want of the oral communication requisite for pointing out the subjects to which they refer. Such communication was necessary, even in former times, to the most learned quipucamayocuna. Most of the quipus here alluded to seem to be accounts of the population of particular towns or provinces, tax-lists, and information relating to the property of the deceased. Some Indians in the southern provinces of Peru are understood to possess a perfect knowledge of some of the ancient quipus, from information transmitted to them from their ancestors. But they keep that knowledge profoundly secret, particularly from the whites. The ancient Peruvians also used a certain kind of hieroglyphics, which they engraved in stone, and preserved in their temples.

Notices of these hieroglyphics are given by some of the early writers. There appears to be a great similarity between these Peruvian hieroglyphics and those found in Mexico and Brazil.

I have already mentioned one of the largest and most wonderful works of Peruvian antiquity, namely, the great military road which passes through the whole empire leading from Cuzco to Quitu, and which has many highly important lateral branches. The magnificent water-conduits, by which barren sand wastes and sterile hills were converted into fruitful plantations, are monuments of equivalent greatness. Traces of these water-conduits are to be seen throughout the whole of Peru, and even where the canals themselves no longer exist, the divisional boundaries of the fields they watered are still discernible. In many districts where the valleys of the Sierra run into the Puna —(I allude here only to the declivities above Tarmatambo, on the road towards Jauja)—there may be seen many square fields of uniform size, each of which is surrounded by a low stone wall; these fields are at present overgrown with Puna grass, and are not fit for cultivation. They are what were called *Tapu* lands, which were distributed to every subject of the Inca empire, so that each family enjoyed the produce arising from the cultivation of a certain portion of ground. These Tapu lands were watered by skilfully constructed aqueducts, whereby they were rendered suitable for agriculture. The Spaniards having destroyed the conduits, the reservoirs dried up, and the soil became barren. Many of these conduits were subterraneous, and it is now no longer possible to find them; in some parts they were constructed with pipes of gold, which the Spaniards eagerly seized as valuable booty.

There still exist vast remains of well-constructed colossal buildings, as palaces, fortresses, and temples. The walls of these edifices were built of square stones, so finely cut, and joined so closely together, that between any two there is not space sufficient to insert the edge of the thinnest paper. In the royal palace of Cuzco, and in the Temple of the Sun, a fusion of gold or silver was used for cement between the stones. This was, however, only employed as a luxury; for in other great edifices, for example, in the baths of Huamalies in the province

of Jauja, stones are kept together by their own weight and the precision of the workmanship. These stones are of very considerable magnitude; some being from twelve to sixteen feet long, from eight to ten feet high, and equally broad. They are not all square; some are polygonal, and some spherical, but they were all joined one to another with the same exactness: of this a remarkable example is presented in the highly interesting ruins of the palace of Limatambo. A question which naturally suggests itself is,—how did the ancient Peruvians, without iron tools, hew these vast stones, and afterwards work the different fragments so skilfully? The first point is to me quite inexplicable; the second may possibly be accounted for by friction; the softest of two stones which was to be brought into a particular shape being rubbed by a harder, and afterwards polished by pyritous plants. The removal of the block from the quarry where it was excavated to the place of its destination, and the raising of fragments of stone to considerable heights, could only have been effected by the co-operation of thousands of men, for no kind of elevating machinery or lever was then known.

The fortresses give a high idea of the progress made by the ancient Peruvians in architectural art. These structures were surrounded by ramparts and trenches. The larger ones were protected by the solidity of the walls, and the smaller ones by difficulty of access. The approaches to them were chiefly subterraneous; and thereby, they were enabled to maintain secret communication with the palaces and temples in their neighborhood. The subterraneous communications were carefully constructed; they were of the height of a man, and in general from three to four feet broad. In some parts they contract suddenly in width, and the walls on each side are built with sharp pointed stones, so that there is no getting between them, except by a lateral movement. In other parts they occasionally become so low, that it is impossible to advance, except by creeping on all fours. Every circumstance had been made a subject of strict calculation; it had been well considered how treasures might be removed from the palaces and temples to the fortresses, and placed securely beyond the reach of an enemy, for in the rear of every narrow pass there were ample spaces for soldiers, who

might dispute the advance of a whole army. Besides the remains of the fortress of Cuzco, which are gradually disappearing every year, the most important are those of Calcahilares and Huillcahuaman. Less interesting, though still very curious, are the ruins of Chimu-canchu in Manische, near Truxillo, which are not of stone but of brick. The architecture of the small fortress of *Huichay*, two leagues from Tarma, which defended the entrance to that valley, is very remarkable. The front is built of small but firmly united stones, and covers a large cavity, in which there are numerous divisions, intended for the preservation of warlike stores, and for quartering soldiers. On the steep declivity of the hill there had been a deep trench, between which there was a wall fourteen feet higher, flanked by three bastions. Around this fortress nitre is found in great abundance. It is now collected by the Huancas (the inhabitants of the valley of Jauja), for making gunpowder. The diggings for nitre have almost obliterated the entrance to the cavity, and the fortress is already so much injured that possibly in another century scarcely a trace of the edifice will remain. Notwithstanding a search of several days, I did not succeed in discovering the mouth of the cavity, though an old Indian, who, years ago, had often visited it, pointed out to me what he supposed to be its precise situation. The walls of perpendicular rock in the neighborhood of Huichay are often 60 to 80 feet high, and the clefts or fissures in them are filled up with small stones. It would be incomprehensible how the Indians ascended to perform this labor, were it not perceived that they have hollowed passages in the mountain. It would appear they must have had dwellings, or stores for provisions, on the higher part of the hill, for small windows are often perceptible in walls of masonry.

The old Indian villages of the Sierra are for the most part situated on heights, or sharp ridges, which are now completely barren, as they no longer receive the artificial watering with which they were formerly supplied. All lie open to the east, so that the inhabitants could behold their Deity the moment he appeared on the horizon. All large towns had a square in their centre, where the religious dances were performed. From the square a certain number of regular roads or streets always ran

in the direction of the four quarters of the firmament. There are great varieties in the construction of the houses. Small insignificant huts often stand close to a palace having twenty or twenty-five windows in one front. Private dwellings in the mountainous parts are built of unhewn stone, cemented with a very strong calcareous mortar. On the coast the walls are of brick. In the departments of Junin and Ayacucho, I met with the ruins of great villages, consisting of dwellings of a peculiar construction, in the form of a tower. Each house is quadrangular, with a diameter of about six feet, and seventeen or eighteen feet high. The walls are from one to one and a half feet thick. The doors, which open to the east or south, are only a foot and a half high, and two feet wide. After creeping in (which is a work of some difficulty) the explorer finds himself in an apartment about five and a half feet in height, and of equal breadth, without any windows. In the walls there are closets or cupboards, which served to contain domestic utensils, food, &c. Earthen pots with maize, coca, and other things, are still often found in these closets. The ceiling of the room is overlaid with flat plates of stone, and in the centre an aperture, two feet wide, is left, forming a communication with the second floor, which is precisely like the first, but has two small windows. The roof of this apartment has also an aperture, affording access to the third floor, the ceiling of which forms the roof of the house, and consists of rather thick plates of stone. The upper room is usually less lofty than the two rooms below it, and seems to have been used as a provision store-room. I found in one of these upper rooms the mummy of a child very well embalmed. The family appear to have lived chiefly on the ground-floors. The place for cooking is often plainly perceptible. The second floor was probably the sleeping apartment. In the course of my travels, when overtaken by storms, I often retreated for shelter into one of these ruined dwellings.

The ancient Peruvians frequently buried their dead in their own houses, and then removed from them. This custom appears to have been very general about the time of the Spanish conquest, when a great number of Indians committed suicide in despair. Household utensils were placed in the graves, when the dead

were buried in the houses, as well as when they were interred in other places. In many houses in which I made diggings I regularly found the following arrangement. Under a stratum of earth two feet deep lay the body, in a state of good preservation, and generally, but not always, in a sitting posture. On clearing away another stratum of earth equally deep there is found a variety of household vessels for cooking, together with water-pots of clay, gourds, hunting and fishing implements, &c. There is frequently a third layer of earth, beneath which the gold and silver vessels and the household deities are deposited. The idols are of clay, stone, and copper, or of the precious metals. Those of clay are hollow, flat, compressed, and in most instances the faces are painted. Those of stone are of granite, porphyry, or sand-stone. These stone images are solid, and often several feet high. The golden idols are always hollow; but they exhibit no distinct trace of the soldering. They are of various sizes; some of them weigh three quarters of a pound. Those of silver are always solid. All these images of deities have the same physiognomy, and disproportionately large head. In most instances the head is covered by a peculiar kind of cap.

The vessels used for holding water or other liquids are very various in color and form. Most of them exhibit ludicrous caricatures of human figures; others are unrecognisable representations of animals or fancy figures. These vessels have in general two apertures, one by which they were filled, and the other by which the liquid was poured out. On filling them a feeble flute-like sound is heard. It is occasioned by the air escaping through the other aperture. Most of these vessels are made of red or black clay, well glazed. Those for holding chicha were very capacious. Some of them, which have been found hermetically closed, have contained chicha upwards of three hundred years old, and remarkable for a very smoky flavor. On the vessels made of gourds fanciful figures are generally carved. Gold drinking cups have been found, adorned with well executed embossed ornaments, and like the images, showing no trace of soldering. Among the warlike weapons, the stone *battle-axes* are very remarkable; they have at both ends a tube, *in which the* handle was fixed by ligatures. Articles for person-

al adornment, such as nose and lip rings, neck chains, pins, bracelets, and ancle bands, are usually of gold, and set with small colored shells. The sceptres of the Incas are of gold, and exquisitely wrought; those of the Curacas of silver; and those of the Caciques of copper, sometimes gilt.

Idols and utensils made of wood are very rarely found. It would appear that the ancient Peruvians found more difficulty in the working of wood than that of metal and stone. The Peruvians give to all objects dug up from the old graves, the name of *Huaqueros*, from Huaca, the word for grave in the Quichua language.

The huacas or graves vary in form or magnitude. When destined for single individuals they were made small; but when for families, they were of considerable extent. On the sandy soil of the coast, no elevation marks the spot where the bodies are interred; but further inland (though still in the coast region), the graves are for the most part elevated and arched, and are built of bricks. In the Sierra the tombs are of stone, quadrangular, oval, or of an obelisk form.

In the huacas, the bodies are found in a sitting position, and supported by stones or reeds: the face turned towards the east. In front of the body it was customary to place two rows of pots containing quinua, maize, potatoes, dried llama flesh, and other kinds of provisions, and these pots were all covered with small lids. On each side of the body were ranged cooking utensils, and vessels containing water and chicha. The body and all the objects deposited in the grave were covered with a layer of sand, above which were spread various articles of clothing. Over these was placed another layer of sand, and then the tomb was built above the whole.

The bodies are found wrapped in several coverings; and when first taken out of the graves, they have the appearance of unfinished statues; the position of the head, knees, and feet being alone recognisable. A strong net-work, composed of twisted straw or bast incloses a thick rush mat, in which the body is wrapped. These coverings being removed, there is found a broad, woollen bandage, passing round the body, and fastening the rushes or sticks which support it in a sitting position. Under

this bandage is a red or party-colored covering which goes over the whole body; and beneath this are one or two yellowish-white coverings, strongly sewed up. On removing these coverings, there are found some pots or drinking cups, a few ornaments, the *Huallqui* with coca, and in most instances a silver or gold idol suspended from the neck of the body. The undermost wrapper consists of a cloth of rather fine texture. Probably it was originally white, but time has changed it to a reddish-yellow. This covering being unsewed, the naked corpse appears; the head alone being encircled with two or three bandages, called *Huinchas*. The body is always in a sitting posture; the knees being drawn up towards the face, and the arms crossed over the breast, in such a manner that the chin rests between the two clenched hands. The wrists are tied together, and the ligature with which they are fastened is passed round the neck. This, which was evidently done only to keep the hands fixed in the required position, has led some commentators on Peruvian antiquities to suppose that the bodies found with strings round the necks were those of hanged persons. In the mouth there is a thin piece of gold, silver or copper; most of the bodies are in a good state of preservation, though the features are not discernible. The hair is always found perfectly free from decay; and that of the females is beautifully plaited.

The question has arisen, whether these bodies were embalmed, or whether their preservation is merely the result of the mummifying nature of the climate. Both conjectures have found zealous supporters. Don Francisco Barrero, keeper of the Museum of Natural History in Lima, mentions, in the *Memorial de Ciencias Naturales*,* that among the ancient Peruvians certain men were appointed as embalmers, and he describes the process they adopted as follows:—They first extracted the brain through the nose, then took out the eyes, and stopped up the sockets with cotton. The bowels, lungs, and even the tongue, were removed, after which the body and skull were filled with a kind of powder, which immediately after it is taken out of the mummies, diffuses a slight odor of turpentine; this odor, however, it soon loses

* Vol. II., p. 106.

on being exposed to the action of the air. The face, hands, and feet, were rubbed over with an oily substance, after which the body was incased in the envelopes above described. I am disposed to believe that this process never had any existence, save in the imagination of Barrera: it indeed resembles the manner in which the Egyptians prepared their mummies; but no such method was practised among the Indians. The mummies collected in the museum of Lima present not the slightest trace of this powder, or indeed of any kind of preservative material—a fact which is mentioned by the director of that establishment, Don E. Mariano de Rivero, in his *Antiguedades Peruanas*.*

On those parts of the coast where it never rains, the combined heat of the sun and the sand has dried up the bodies; in the mountain districts, the pure atmosphere and the peculiarly drying nature of the wind have produced the same effect. Similar appearances may be traced to different circumstances. Of this fact the burial ground of Huacho, and the mummified animals seen on the level heights, furnish the most convincing proofs. In districts exposed to frequent rain, mummies are found in very bad preservation, most of them being mere skeletons. All are in sitting postures. In those parts of the Sierra where the soil is impregnated with nitre, bodies, which must have lain in the ground for several centuries, are found in a very fresh condition, notwithstanding the humidity.

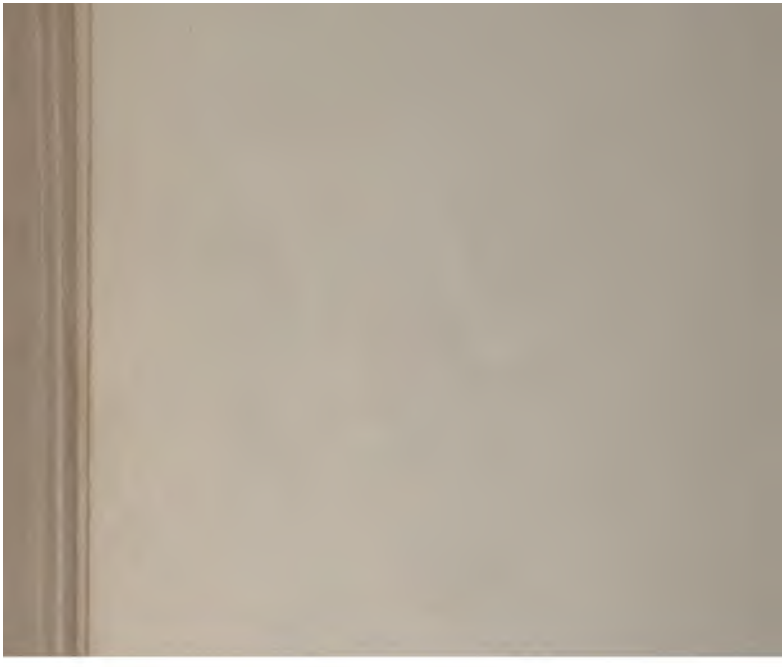
Garcilaso de la Vega and the Padre Acosta state that the ancient Peruvians were acquainted with the art of embalming, but that they employed it only for the bodies of their kings. In the Temple of the Sun at Cuzco, there were found excellently preserved mummies of the Incas, each seated on a throne. Several years after the Spanish conquest, these mummies were conveyed to Lima, and were buried in the court of the hospital of San Andres. It is deeply to be deplored that the fanaticism of the Spanish conquerors should have destroyed these interesting remains of the ancient sovereigns of Peru.

The facts adduced in the course of this volume, relative to the barbarous colonization system of the Spaniards, must sufficiently

* Published in 1846.

prove how adverse was Spanish dominion to the improvement of the natives, and to the prosperity of the country. For Peru, Nature's bounteously favored land, let us hope that there is reserved a future, happier than either the past or the present!

THE END.



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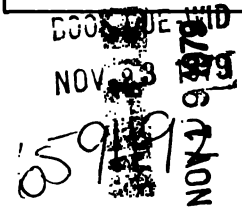
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